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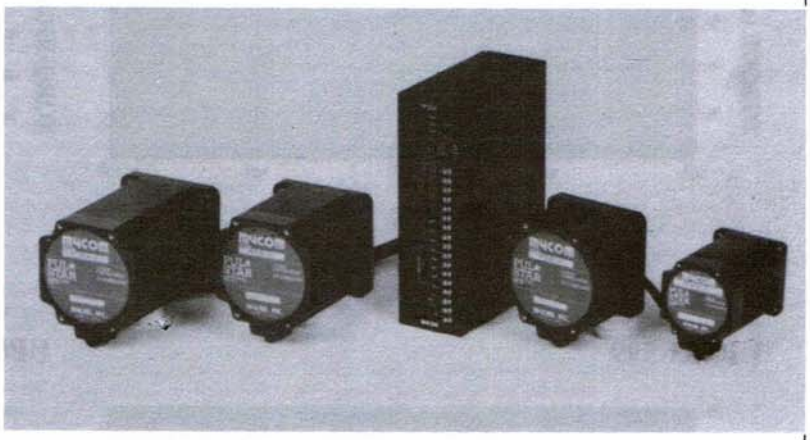
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Find the *Mycom Technologies UPS 53-331* at our website: *Click HERE*

# UPS 53 PULSTAR V SERIES
## 5-Phase Stepping Motors and Drivers* *High Speed Version*

*A New Generation of 5-Phase Units Employ Rare Earth Magnet Technology to Offer the Highest Performance Stepping Motor/Driver Package Available.*

- Very High Torque in a Compact Package.
- 500 (Full) / 1000 (Half) Mechanical Steps per Revolution.
- Virtually No Low Speed Resonance.
- Unit Includes Motor & Driver with Built-in Power Supply.
- Motor & Driver Are Perfectly Matched Unit (No Adjustments Necessary).
- Many Other Beneficial Features.



* Protected by US/Intl. Patents



### UPS 53 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-in² (g cm²) | STEP ANGLE FULL/HALF | PHASE CURRENT (A) | MOTOR WEIGHT oz (kg) | DRIVER TYPE | MOTOR TYPE |
|---|---|---|---|---|---|---|---|---|
| 23 (60) | UPS53-569HAC(BC) | 230.5 (16.6) | 2.8 (560) | 0.72°/0.36° | 2.8 | 45.8 (1.3) | UPS53-330 | PF 569HAC(BC) |
| 34 (85) | UPS53-596HAC(BC) | 291.6 (20.9) | 7.0 (1400) | 0.72°/0.36° | 2.8 | 52.9 (1.5) | UPS53-330 | PF 596HAC(BC) |
| | UPS53-599HAC(BC) | 568 (40.9) | 13.5 (2700) | 0.72°/0.36° | 2.8 | 88.2 (2.5) | UPS53-330 | PF 599HAC(BC) |
| | UPS53-5913HAC(BC) | 873.5 (62.9) | 20 (4000) | 0.72°/0.36° | 2.8 | 123.4 (3.5) | UPS53-330 | PF 5913HAC(BC) |

## Other Specifications

### Motor

| | |
|---|---|
| Step Angle Accuracy | ± 3 min. |
| Shaft Radial Play | 0.025 mm max. / load 0.5 Kg |
| Shaft Axial Play | 0.075 mm max. / load 1 Kg |
| 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

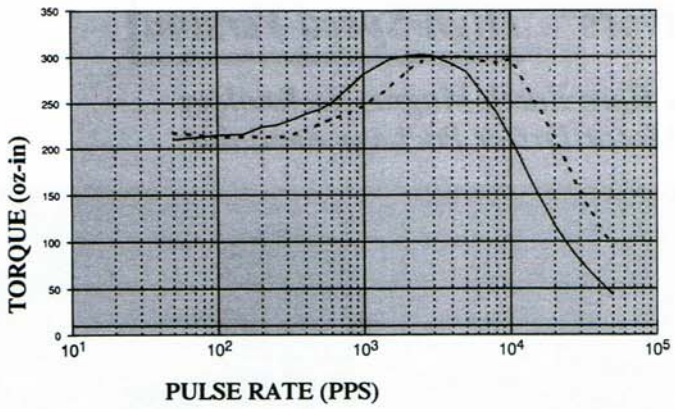
| | UPS 53 - 330 |
|---|---|
| Drive Type | Star Bi-Polar, Constant Current Chopper |
| Power Requirements | 115 ~ 120V AC, 50/60 Hz |
| Power Consumption | 7 Amp Max. |
| Built In Functions | Auto current reduction at stand still. Current off. Excitation timing signal output. Driver overheat warning signal output. |
| Input Pulse Types | STEP and DIRECTION or CW/CCW signal (selectable). All opto isolated. Voltage H = 4 ~ 5V, L = 0 ~ 0.5V. Resistance 220 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 |



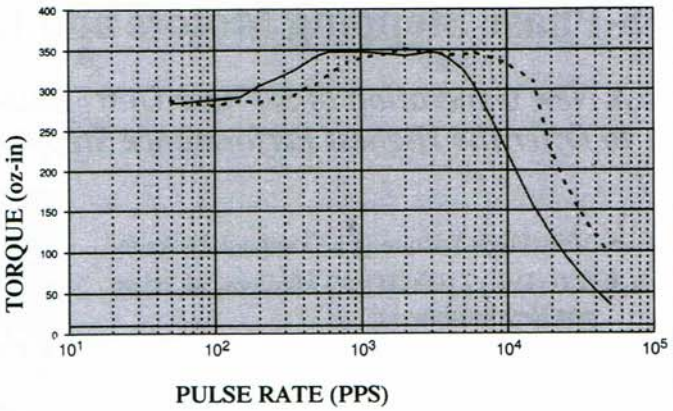
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# Performance Characteristics

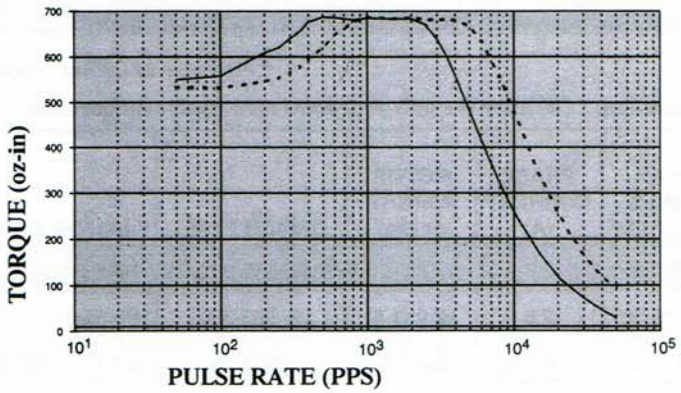
## UPS53-569



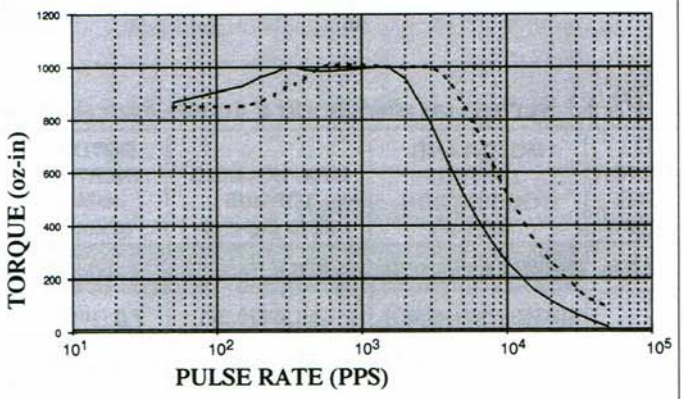

## UPS53-596




## UPS53-599




## UPS53-5913



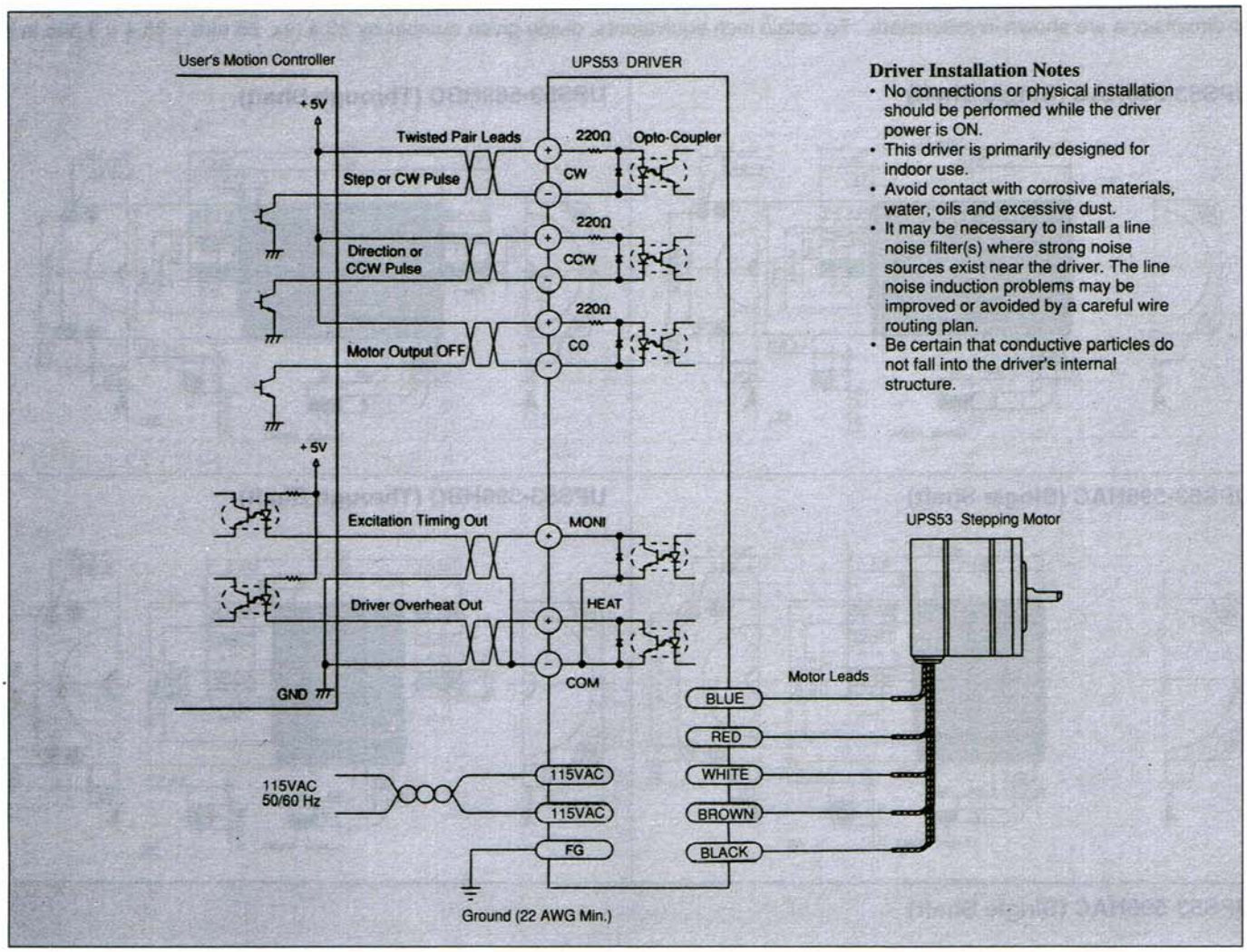

———— FULL STEP

- - - - - - - - - - - - HALF STEP



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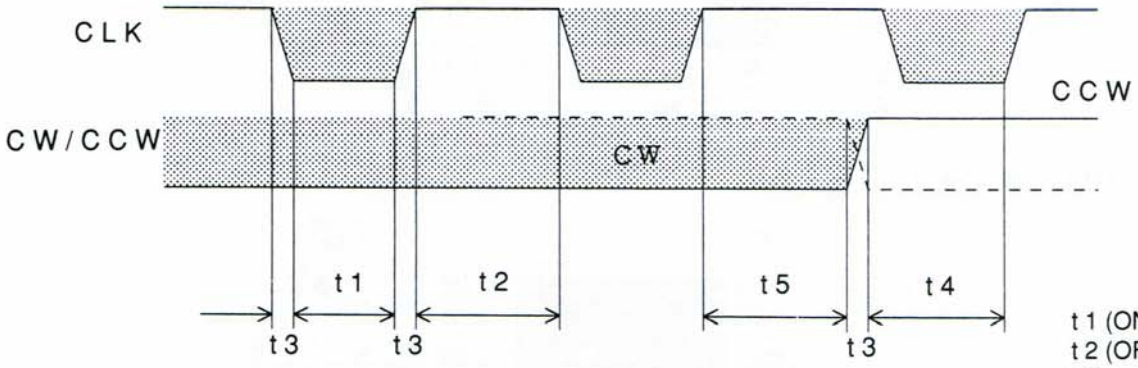
## Connections




**Driver Installation Notes**

- No connections or physical installation should be performed while the driver power is ON.
- This driver is primarily designed for indoor use.
- Avoid contact with corrosive materials, water, oils and excessive dust.
- It may be necessary to install a line noise filter(s) where strong noise sources exist near the driver. The line noise induction problems may be improved or avoided by a careful wire routing plan.
- Be certain that conductive particles do not fall into the driver's internal structure.

### Input Pulse Waveform




| | |
|---|---|
| t 1 (ON) | ≧ 6μ s |
| t 2 (OFF) | ≧ 10μ s |
| t 3 | ≦ 2μ s |
| t 4 | ≧ 20μ s |
| t 5 | ≧ 24μ s |

1. Input voltage: High = 4V to 5V, Low = 0V to 0.5V
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 of an appropriate value to limit the current flow through the opto-coupler LED to 15mA.





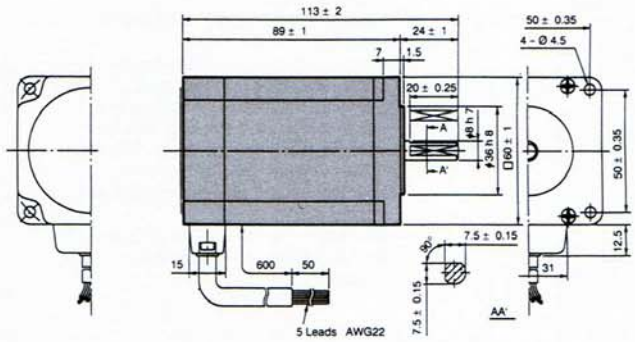
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# UPS 53 Series Motor Dimensions

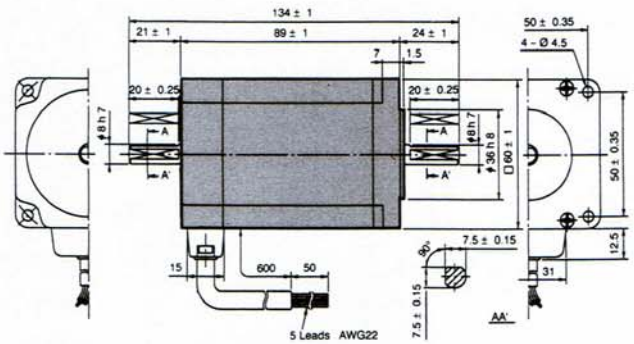
Unit: (mm)

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

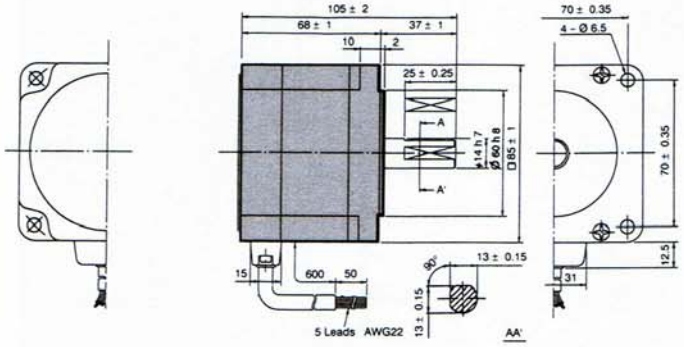
## UPS53-569HAC (Single Shaft)



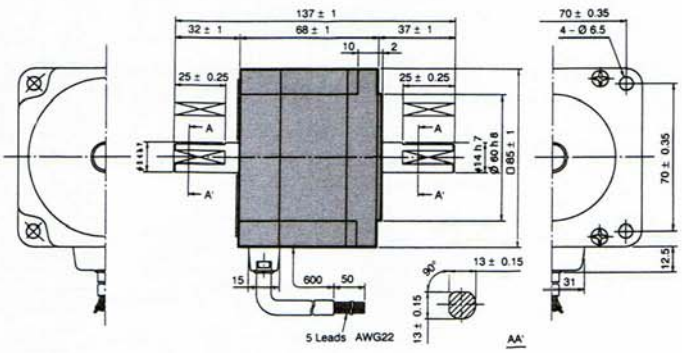

## UPS53-569HBC (Through Shaft)



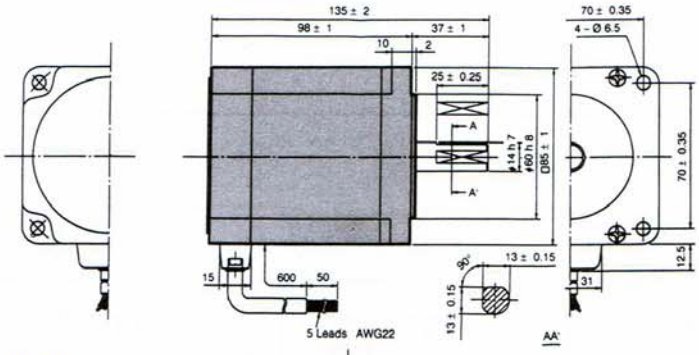

## UPS53-596HAC (Single Shaft)



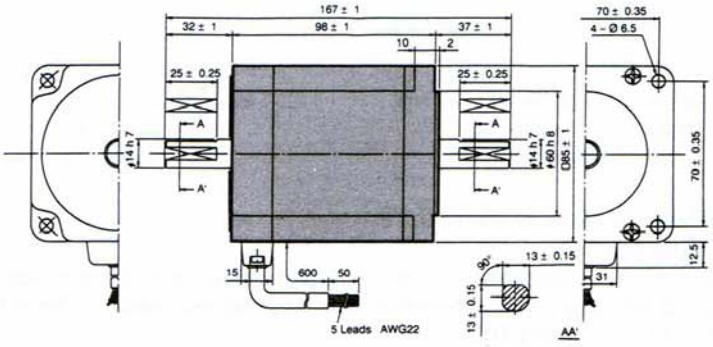

## UPS53-596HBC (Through Shaft)




## UPS53-599HAC (Single Shaft)



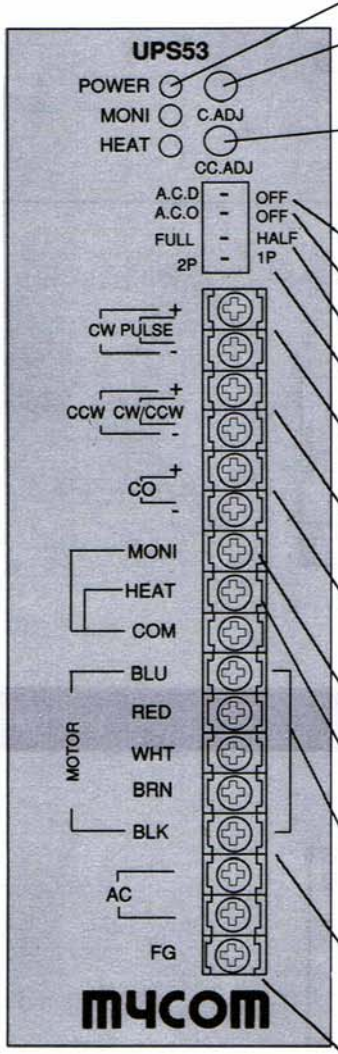

## UPS53-599HBC (Through Shaft)






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## UPS53 Driver Functions




**Power indicator LED**

**Current Adjust (Motor run current adjustment)**
Each driver is pre-adjusted for the applicable motor included with a package. This adjustment **should not be changed** unless a lower current level setting is absolutely needed in order to reduce motor torque and motor/drive heat generation.

**CC. Adjust (motor standstill current cutback adjustment)**
UPS53 drivers are equipped with an auto-current cutback feature when the motor is at stand still (idle) to reduce motor heat buildup when not running.
Adjustable range is from 20% to 90% of motor run current value which is set by C.ADJ pot. Clockwise rotation of this pot increases motor standing current, and counterclockwise reduces motor standing current. Factory set value is 50%. If motor holding torque at stand still is not needed, this pot may be set at the lowest value (fully counter clockwise) to minimize motor heating. This function is activated 200mS after the motor stops.

**Automatic current reduction (current cutback) switch**
When this switch is in OFF position, current cutback function is disabled.

**Automatic current off.**
When this switch is in the ON position and the onboard temperature sensor reaches 158°F (70°C) the driver will automatically cut all current to motor. The OFF position will disable this function.

**Step angle selector (Full step = 0.72° Half step = 0.36°)**

**Input pulse selector.**
1P = STEP/DIRECTION Mode 2P = CW/CCW Mode

**CW step input terminal (5V negative logic)**
(Low or 0V to 0.5V = ON, Hi or 4V to 5V = OFF) Pulse input for CW motor rotation.
When step and direction mode selected, this terminal accepts the STEP input.

**CCW step input terminal (5V negative logic)**
(Low or 0V to 0.5V = ON, Hi or 4V to 5V = OFF) Pulse input for CCW motor rotation.
When step and direction mode selected, this terminal accepts the DIRECTION input.

**Motor current shutoff signal input terminal (5V negative logic)**
Motor winding current turn-off signal input. When this input terminal is kept ON, the driver will output no motor current. CAUTION: The motor will produce no holding torque.

**Excitation timing ZERO output terminal**
This terminal provides opto isolated open collector output for excitation timing origin (step #0) of the motor. A green LED indicator which will light when this terminal turns on is provided for visual timing representation.

**Driver overheat alarm output terminal**
This terminal provides opto isolated open collector output for driver overheat conditions when the onboard temperature sensor detects the driver's heat sink temperature to exceed 158°F (70°C).

**Motor lead terminals (Motor power outputs)**
Connect color coded motor leads to these terminals.

**AC power input terminal**
Connect 115V (nominal) AC (50/60Hz) line power to these terminals. Use 20 AWG or larger leads for connections.

**Frame Ground**
Connect to system ground point.

**CAUTION: TO AVOID INJURY BY ELECTRICAL SHOCK & 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 PRODUCT 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 SIDE TO AVOID POSSIBLE SHORT CIRCUIT ACCIDENTS.**





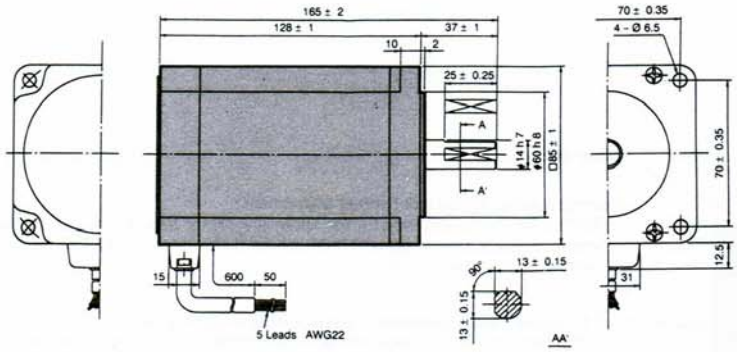
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## UPS 53 Series Motor Dimensions

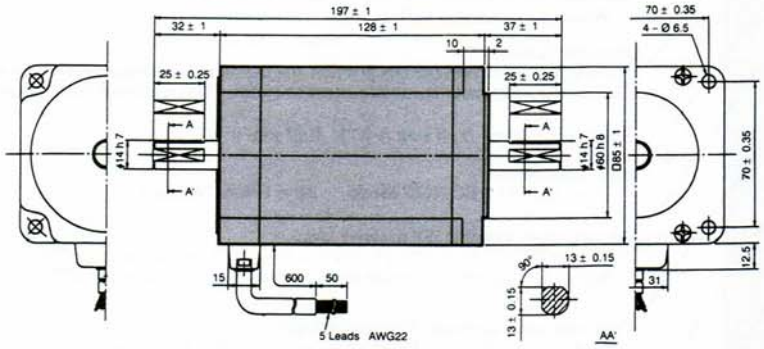
Unit: (mm)

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

### UPS53-5913HAC (Single Shaft)

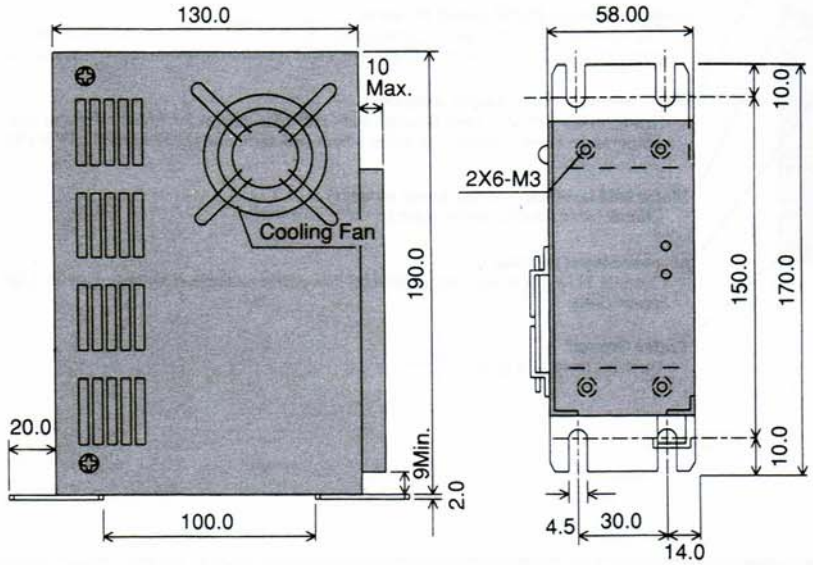



### UPS53-5913HBC (Through Shaft)




## UPS 53 Driver Dimensions

Unit: (mm)




**DRIVER WEIGHT: 2.6 lb (1.2kg)**

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