

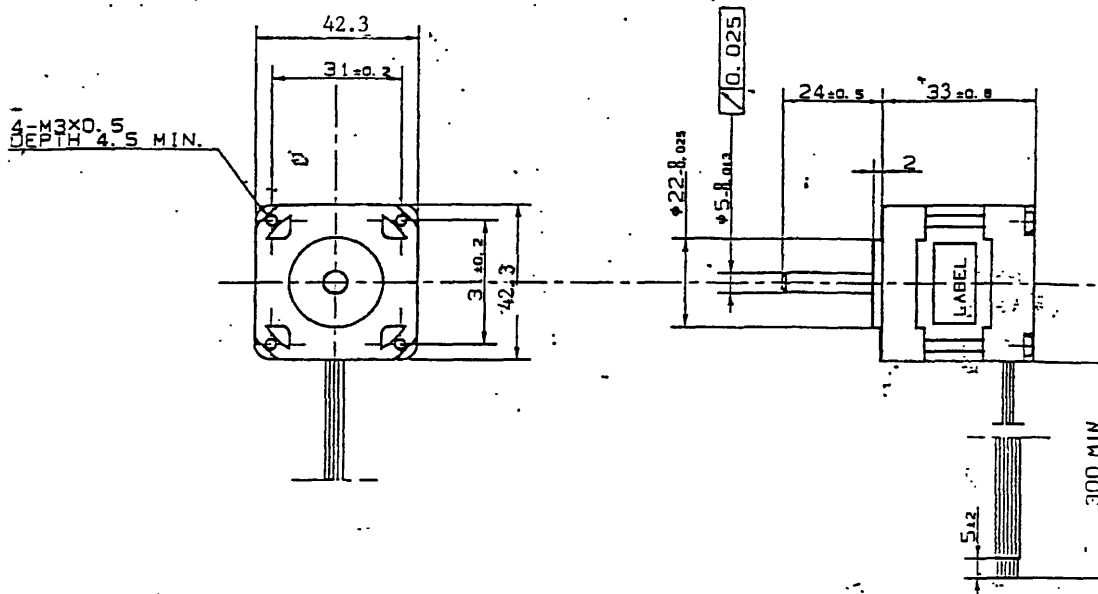


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Y129

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## TECHNICAL DATA



### 1. SCOPE

#### 1-1 Scope

This specification covers the general requirements for the step motor.

#### 1-2 Type

This step motor consists of unipolar winding stator and hybrid magnet rotor.

### 2. RATING

|                           |                                  |
|---------------------------|----------------------------------|
| 2-1 Duty                  | : Continuous                     |
| 2-2 Step angle            | : 1.8 deg/full step              |
| 2-3 Number of phase       | : 4                              |
| 2-4 Rated voltage         | : 12 V D.C.                      |
| 2-5 Rated current         | : 0.16 A                         |
| 2-6 Insulation class      | : B                              |
| 2-7 Operating condition   |                                  |
| 2-7-1 Ambient temperature | : 0 °C to 50 °C                  |
| 2-7-2 Ambient humidity    | : 10 % to 90 % (No condensation) |
| 2-8 Storage condition     |                                  |
| 2-8-1 Ambient temperature | : -40 °C to 85 °C                |
| 2-8-2 Ambient humidity    | : 5 % to 95 % (No condensation)  |

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### 3. STANDARD TEST CONDITION

Unless otherwise specified, all measurements and tests shall be made under the following condition.

- 3-1 Ambient temperature : 25 °C
- 3-2 Ambient humidity : 65 %
- 3-3 Atmospheric pressure : 1.013 mb
- 3-4 Supplied winding voltage : 12 V
- 3-5 Test circuit : According to Fig.1
- 3-6 Exciting method : 2 phase exciting

If there is no doubt in the measured or tested result, the test can be made under the temperature 5 °C to 35°C, the humidity 45% to 85% and atmospheric pressure 950mb to 1.020mb.

### 4. ELECTRICAL CHARACTERISTICS

- 4-1 Winding resistance : 75 Ohm  $\pm 10\%$  at 25 °C
- 4-2 Winding inductance : 60 mH  $\pm 20\%$  (1KHz, 1Vrms)
- 4-3 Insulation resistance : More than 100 MOhm  
(Apply 500 V D.C. between motor frame and lead wires.)
- 4-4 Dielectric strength : More than 500V, 1 minute.  
(Motor is capable of withstanding without break down, when 500 V A.C. is applied for period of 2 minute between motor frame and lead wires.)
- 4-5 Temperature rise : Less than 80 deg.  
(Measured by resistance method when two windings are excited by 12 V D.C. )
- 4-6 Holding torque : 900 gf-cm  $\pm 15\%$   
(0.1 A/phase, 2 phase exciting)
- 4-7 Detent torque : 150 gf-cm Nominal
- 4-8 Maximum sieving pulse rate : More than 760 p.p.s.
- 4-9 Maximum starting pulse rate : More than 730 p.p.s.
- 4-10 Positional accuracy : Less than  $\pm 0.144$  deg  
(excluding hysteresis)
- 4-11 Lead wire
- 4-11-1 Type : AWG 26 UL 3265
- 4-11-2 Color : According to Table 1. and Fig 2.

| phase | COMMON         | 1     | 2   | 3      | 4      |
|-------|----------------|-------|-----|--------|--------|
| color | Black<br>White | Brown | Red | Orange | Yellow |

Table 1. Lead color

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**TECHNICAL DATA****4-12-3 Direction of rotation**

Phase sequence to produce clockwise rotation viewed from mounting end is as follows.

| STEP | BROWN | RED | ORANGE | YELLOW | BLACK, WHITE |
|------|-------|-----|--------|--------|--------------|
| 1    | gnd   | gnd |        |        | +V           |
| 2    |       | gnd | gnd    |        | +V           |
| 3    |       |     | gnd    | gnd    | +V           |
| 4    | gnd   |     |        | gnd    | +V           |

Table 2. Phase sequence (CW rotation)

**5. MECHANICAL CHARACTERISTICS**

- 5-1 Mechanical dimensions : According to drawing number 113-0427- (3/3)
- 5-2 shaft
  - 5-2-1 Material : SUS 303
  - 5-2-2 Diameter :  $\phi 5 - 0.015$
  - 5-2-3 Run out : Less than 0.025
- 5-3 Rotor inertia : 28 g-cm<sup>2</sup> approximately
- 5-4 Bearing : Single row ball bearing
- 5-5 Audible noise : As per our sample
- 5-6 End-bell material : Aluminum alloy
- 5-7 Weight : Approximately 220g
- 5-8 Life : More than 10,000hr  
(Motor is operated in 333 p.p.s. rate and without frictional and inertial load.)

**6. IDENTIFICATION**

- 6-1 Label : White Label
- 6-2 Identification
  - 6-2-1 Vendor part number : Y129
  - 6-2-2 Step angle : 1.8 DEG/STEP
  - 6-2-3 Winding resistance : 75 OHM

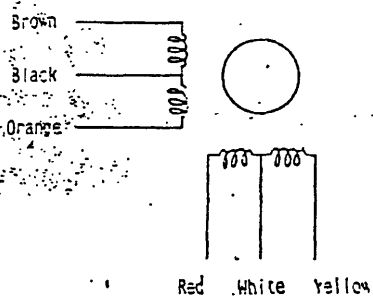


Fig. 2 LEAD COLOR

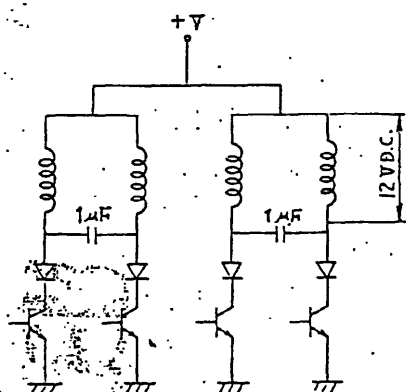


Fig. 3 TEST CIRCUIT



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## TECHNICAL DATA

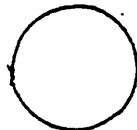
STEPPER MOTOR Y129

NEW

OLD

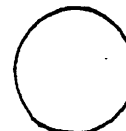
AMENDMENT TO LEAD WIRE COLOUR CODE CONFIGURATION TO FARNELL TYPE 586389 EFFECTIVE FROM THE 24TH MARCH 1997.

|       |   |
|-------|---|
| BROWN | A |
| WHITE | G |
| RED   | A |



|        |   |
|--------|---|
| ORANGE | B |
| BLACK  | O |
| YELLOW | B |

|        |   |
|--------|---|
| BROWN  | A |
| BLACK  | O |
| ORANGE | A |



|        |   |
|--------|---|
| RED    | B |
| WHITE  | O |
| YELLOW | B |