

*** PRELIMINARY REVISION FOR REFERENCE ***

DELTA ELECTRONICS, INC.
 252, SHANG YING ROAD, KUEI SAN
 TAOYUAN HSIEN 333, TAIWAN.

TEL : 886-(0)3-3591968
 FAX : 886-(0)3-3591991

SPECIFICATION FOR APPROVAL

Customer:

Description: GT FAN

Customer P/N: REV:

Delta Model NO.: GTB028EUB16 Safety Model NO.:

Sample Rev: X02 Issue NO:

Sample Issue Date: Quantity:

1. SCOPE:

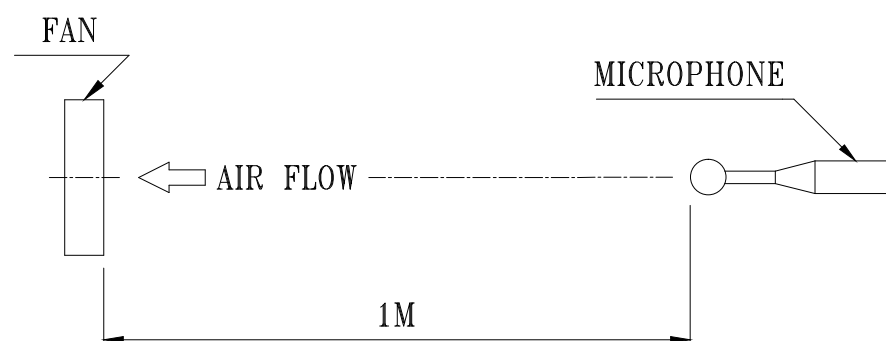
THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THIS CENTRIFUGAL FAN.

2. NOMINAL DATA:

UNLESS SPECIFIED, ALL READINGS AND TESTS ARE BASED ON 25 DEG C, 65% RH.

| ITEM | DESCRIPTION |
|--|--|
| NOMINAL VOLTAGE | 1 ϕ 230 VAC 50/60Hz |
| NOMINAL VOLTAGE RANGE | 1 ϕ 200 - 277 VAC |
| INPUT POWER @ FREE-AIR | 170 W |
| INPUT POWER @ MAX. LOAD | 180 W |
| INPUT CURRENT (MAX) | 1.00 A |
| SPEED | 2020 R.P.M. (REF.) |
| MAX. AIR FLOW (AT ZERO STATIC PRESSURE) | 2222 (MIN. 2000) M ³ /H 1308 (MIN. 1177) CFM |
| MAX. AIR PRESSURE (AT ZERO AIR FLOW) | 569.7 (MIN. 461.4) Pa 2.287 (MIN. 1.852) inchH ₂ O |
| ACOUSTICAL NOISE (AVG.) @ FREE-AIR | 73.0 (MAX 78.0) dB(A) |

- NOTES: 1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
 2. THE VALUES WRITTEN IN PARENS , (), ARE LIMITED SPEC.
 3. ACOUSTICAL NOISE MEASURING CONDITION:



NOISE IS MEASURED AT NOMINAL VOLTAGE IN FREE AIR IN ANECHOIC CHAMBER WITH B & K SOUND LEVEL METER WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE.

PART NO:

DELTA MODEL: GTB028EUB16

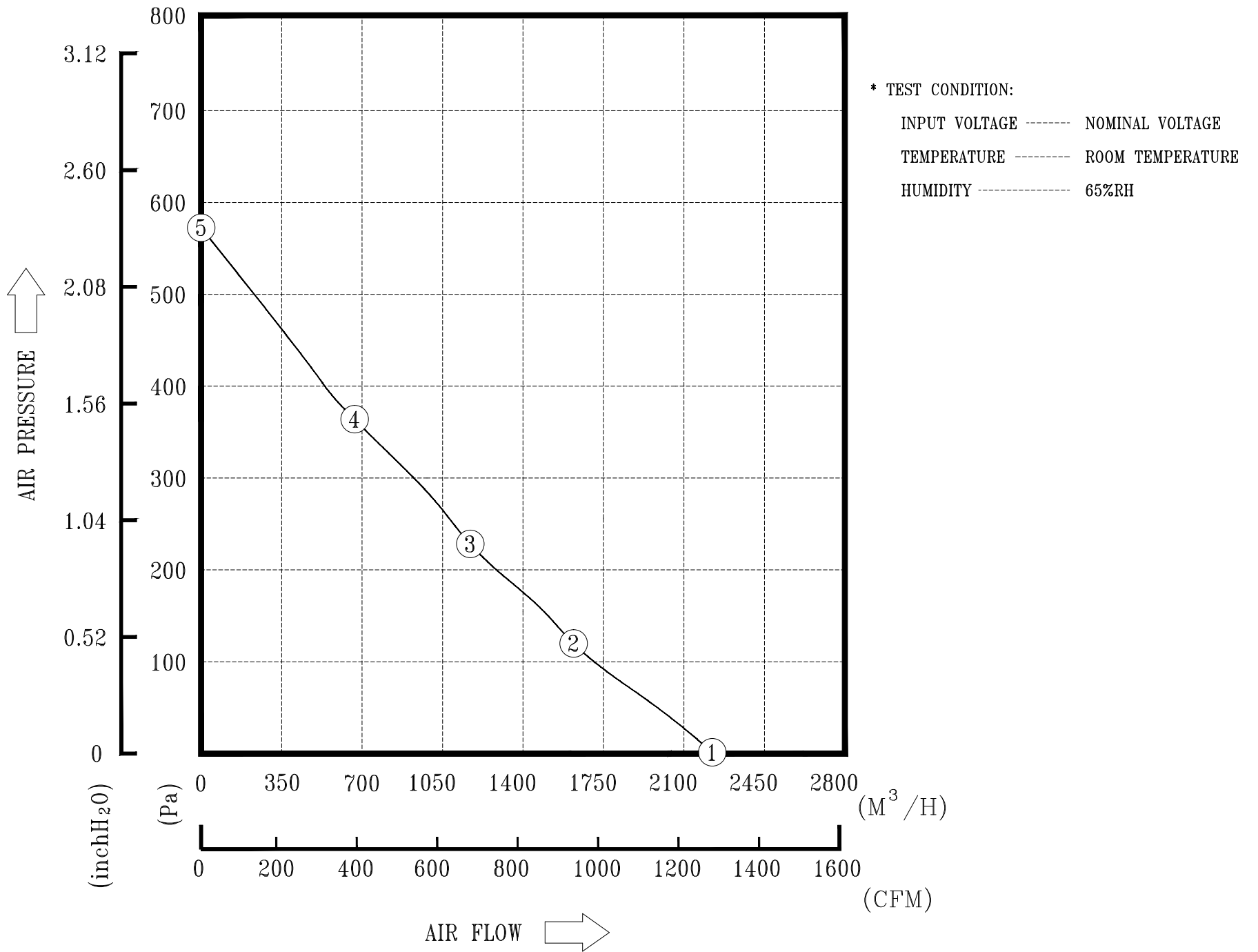
3. FEATURES:

| | |
|---------------------------------|--|
| DIRECTION OF ROTATION | CLOCKWISE, SEEN ON ROTOR |
| BEARING SYSTEM | BALL BEARINGS |
| WEIGHT | 2.6 K.G. (REF.) |
| MATERIAL OF ELECTRONICS HOUSING | DIE-CAST ALUMINUM |
| MATERIAL OF IMPELLER | ALUMINUM SHEET |
| ELECTRICAL LEADS | LEAD WIRE |
| MOTOR PROTECTION | OVER TEMPERATURE PROTECTED |
| LEAKAGE CURRENT | <= 3.5 mA |
| INSULATION CLASS | B |
| TYPE OF PROTECTION | IP54 |
| PROTECTION CLASS | I |
| POWER FACTOR CORRECTION | ACTIVE |
| OPERATING TEMPERATURE | -25~+60 °C (REF.) |
| STORAGE TEMPERATURE | -40~+70 °C (REF.) |
| EMC | EN61000-6-1 , EN61000-6-3 , EN61000-3-2/3 |
| SAFETY | UL / TUV |
| LIFE EXPECTANCE | * 60,000 HOURS CONTINOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH. |
| FUNCTIONS | - INPUT 0-10VDC/PWM FOR SPEED CONTROL - FAN SPEED SIGNAL OUTPUT - OUTPUT +10VDC(+/-10%), max. 10mA |

PART NO:

DELTA MODEL: GTB028EUB16

4. P & Q CURVE:



MEASURED DATA:

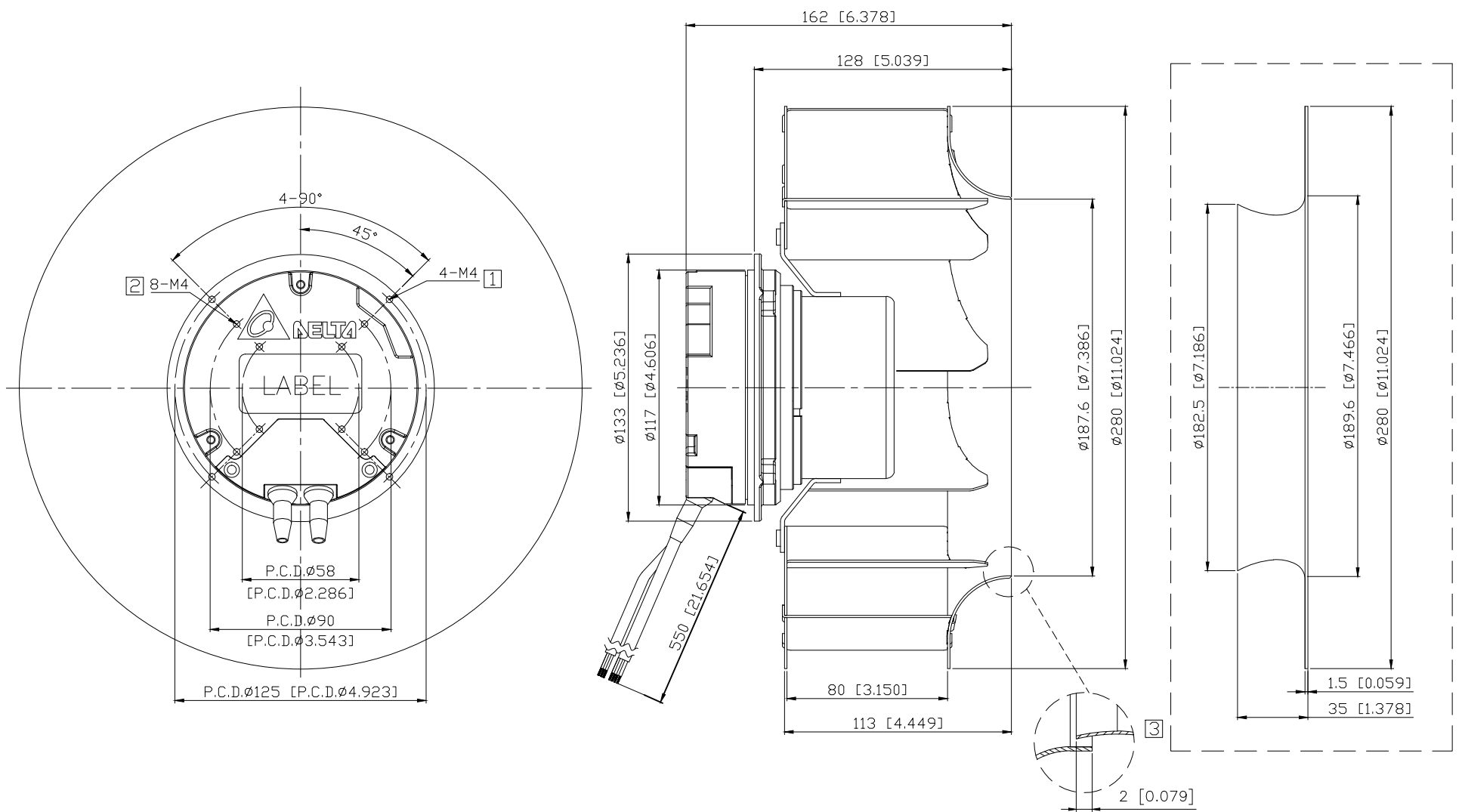
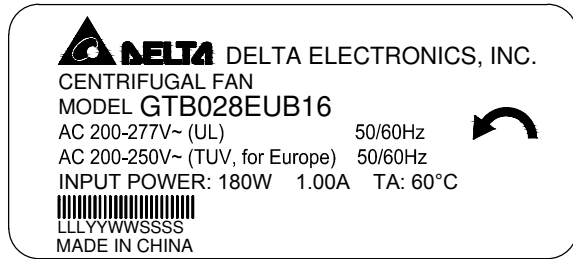
| | P | Q | N | P1 | I | Lp |
|---|-------|---------------------|----------|-----|------|---------|
| | [Pa] | [M ³ /H] | [R.P.M.] | [W] | [A] | [dB(A)] |
| 1 | 0 | 2223 | 2010 | 164 | 0.75 | 73.0 |
| 2 | 118.2 | 1607 | 1862 | 165 | 0.76 | |
| 3 | 235.2 | 1130 | 1822 | 162 | 0.76 | |
| 4 | 365.5 | 650.5 | 1922 | 164 | 0.75 | |
| 5 | 569.4 | 0 | 2274 | 110 | 0.54 | |

PART NO:

DELTA MODEL: GTB028EUB16

5. DIMENSION DRAWING:

LABEL



UNIT: mm [INCH]

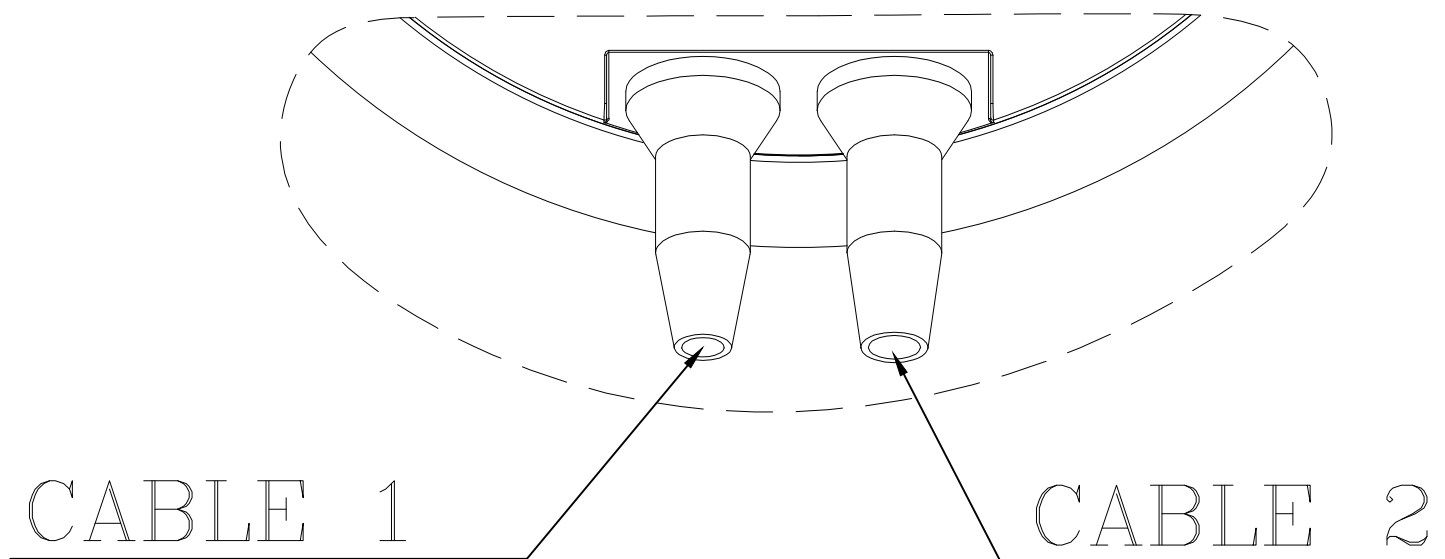
NOTE:

- ① DEPTH OF SCREW: 6~8mm.
- ② DEPTH OF SCREW: 6mm(max.).
- ③ ACCESSORY: INLET NOZZLE, ALL THE PERFORMANCE DATA ARE MEASURED WITH IT.
- ④ THIS PRODUCT IS RoHS COMPLIANT.

PART NO:

DELTA MODEL: GTB028EUB16

6. DEFINITION OF CABLE:

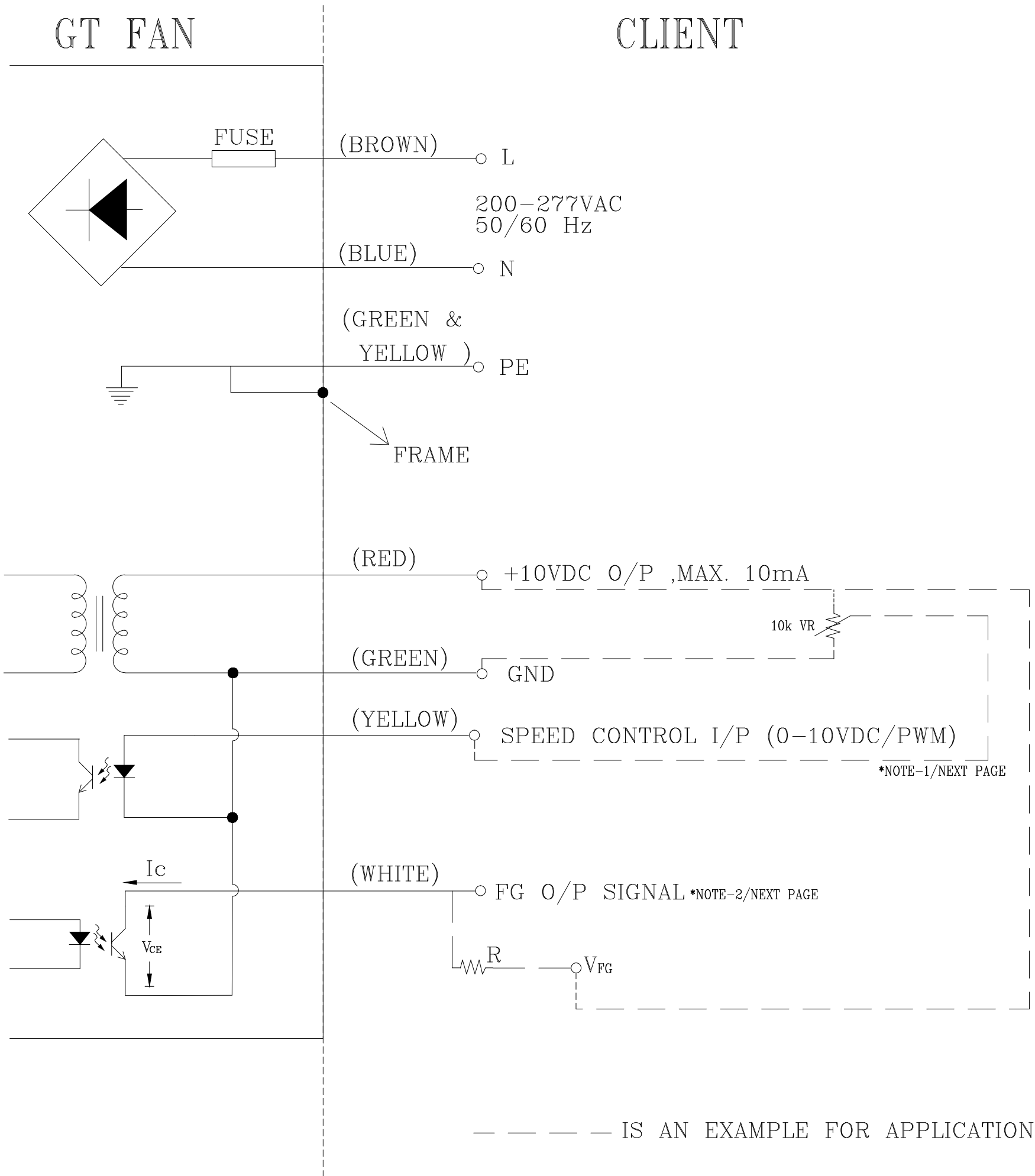


| CABLE | COLOR | FUNCTIONS |
|-------|--------------|-----------|
| 1 | GREEN | GND |
| 1 | RED | 10V OUT |
| 1 | WHITE | FOO |
| 1 | YELLOW | PWM |
| | | |
| 2 | BROWN | L |
| 2 | BLUE | N |
| 2 | GREEN/YELLOW | EARTH |

PART NO:

DELTA MODEL: GTB028EUB16

7. LEAD WIRE CONNECTION:



PART NO:

DELTA MODEL: GTB028EUB16

8. FUNCTION CONTROL: VOLTAGE CONTROL

*NOTE-1: SPEED CONTROL SIGNAL

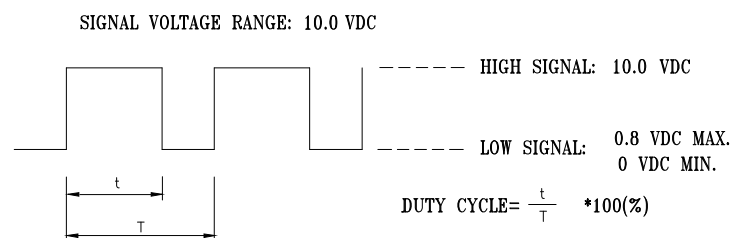
- THERE ARE TWO WAY TO CONTROL FAN SPEED.

A. VOLTAGE CONTROL

- CONTROL VOLTAGE RANGE SHALL BE 0-10 VDC.
- VOLTAGE AT 10 VDC THE FAN WILL SPIN AT MAXIMUM SPEED.
- VOLTAGE HIGHER THAN 1.5 VDC, THE FAN WILL START UP.
- VOLTAGE LOWER THAN 0.5 VDC, THE FAN WILL STOP.

B. PWM CONTROL

- THE AMPLITUDE VOLTAGE SHALL BE 10VDC. (100Hz~100kHz)



- PWM DUTY HIGHER THAN 15 % , THE FAN WILL START UP.
- PWM DUTY LOWER THAN 5 % , THE FAN WILL STOP.

- THE SPEED COMPARISON WITH CONTROL LEVEL:

| VOLTAGE(V) | PWM DUTY(%) | SPEED (R.P.M.) _(REF.) |
|------------|-------------|----------------------------------|
| 0.0 | 0 | 0 |
| 9.5 | 95% | 2020 |

*NOTE-2: FREQUENCY GENERATOR (FG) SIGNAL

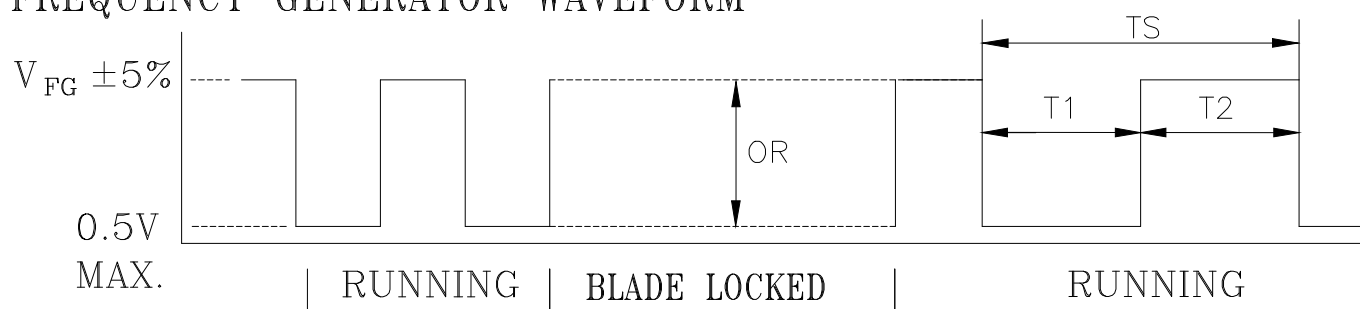
$V_{CE} \text{ (sat)} = 0.7V \text{ MAX.}$

$V_{FG} = 20.0V \text{ MAX.}$

$I_c = 5mA \text{ MAX.}$

$R \geq V_{FG} / I_c$

FREQUENCY GENERATOR WAVEFORM



| | |
|-------------------------|------------------------|
| $N = \text{R.P.M}$ | 1 PULSE PER REVOLUTION |
| $TS = 60/N(\text{SEC})$ | $T1 = T2 = 1/2 TS$ |

PART NO:

DELTA MODEL: GTB028EUB16

9. CONTROL LEVEL & SPEED CURVE:

