



Model

Q12

3U Active Air Cooler

PRODUCT SPECIFICATIONS

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Model Number: Q12

- Recommend for Intel® CPU as following
 - Intel 12th Generation, Intel® Core™ i9 Processors, Socket FCLGA 1700
 - Active Cooler for 3U Server & Up

Overall Specification

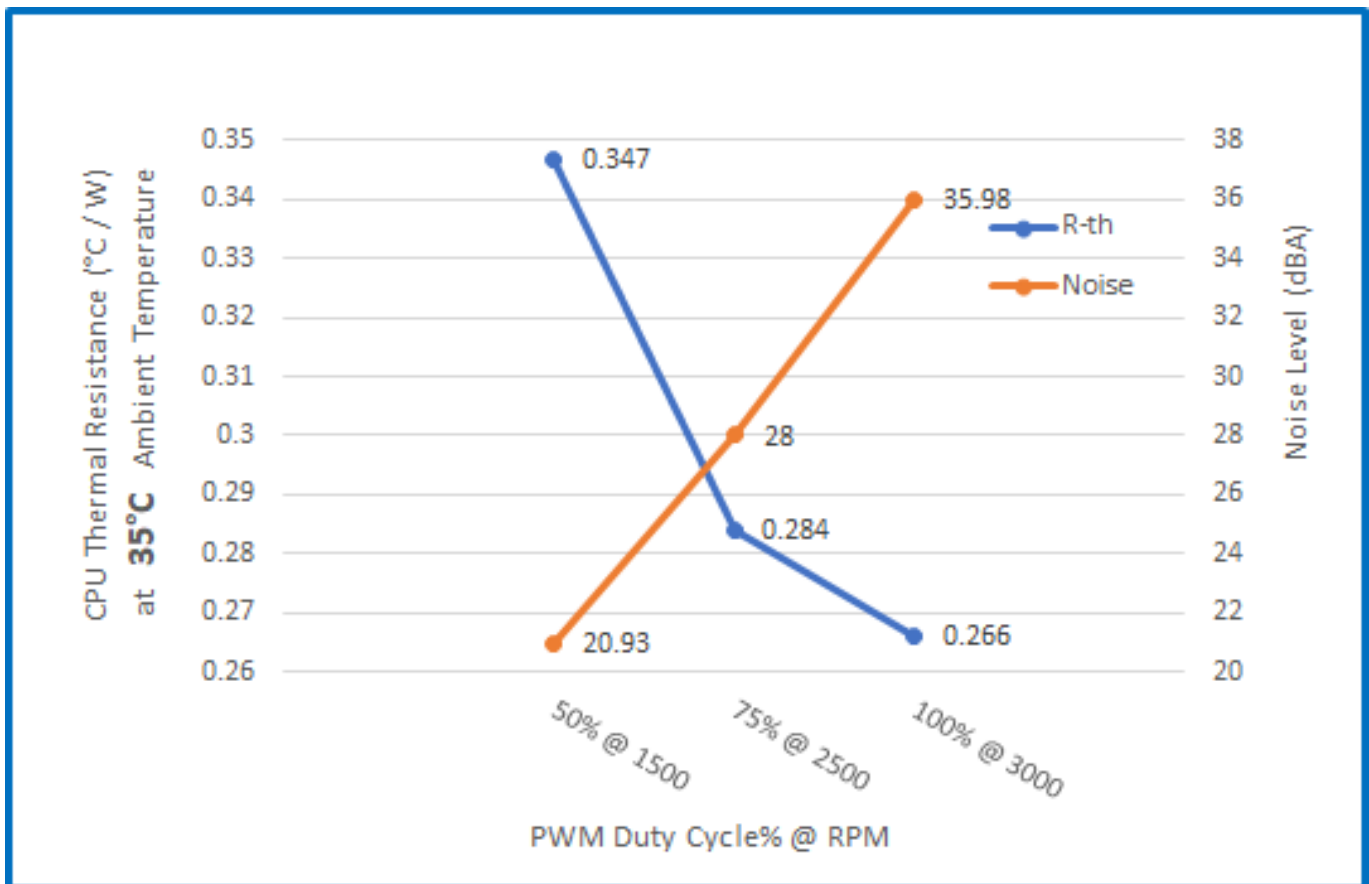
| | |
|----------------|---|
| Dimension | 106 x 106 x 73 mm |
| Weight | 480 g |
| Material | Aluminum Radial fin Heat Sink with Copper Core Inserted |
| Fan | 9225 Round Fan Top-Down Blowing |
| Retention | Captive with Screw-on Retention |
| Protection | Finger Guard Protection |
| Back Plate Set | Included |
| Thermal Grease | Pre-Printed with Shin-Etsu 7762 |
| TDP | Support 125 Watts CPU Power Heat Dissipation |

Cooling Fan Specification

| | |
|-----------------------|---|
| Dimension | Ø 92.0 x 25.0 mm |
| Bearing | Ball Bearing, Dual |
| Rated Voltage | 12V |
| Rated Speed | At Duty Cycle 0~20%: 1000 RPM At Duty Cycle 50%: 1500 RPM At Duty Cycle 100%: 3000 RPM |
| Input Power | At Duty Cycle 0~20%: 0.60 W At Duty Cycle 50%: 1.20 W At Duty Cycle 100%: 3.00 W |
| Maximum Airflow | At Duty Cycle 0~20%: 17.86 CFM At Duty Cycle 50%: 26.79 CFM At Duty Cycle 100%: 53.57 CFM |
| Rated Static Pressure | At Duty Cycle 0~20%: 0.480 mm- H2O At Duty Cycle 50%: 1.070 mm-H2O At Duty Cycle 100%: 4.290 mm-H2O |
| Acoustical Noise | At Duty Cycle 0~20%: 16.00 dBA At Duty Cycle 50%: 20.93 dBA At Duty Cycle 100%: 35.98 dBA |

| | |
|-------------------|---|
| Lead Wire Pin Out | Pin#1- Black(-) Pin#2- Yellow(+) Pin#3- Green(Tachometer/ Signal Output) Pin#4- Blue (PWM) |
|-------------------|---|

Performance Chart : Active Cooler sample Q12 Cooling Performance Thermal Resistance VS. Fan Speed

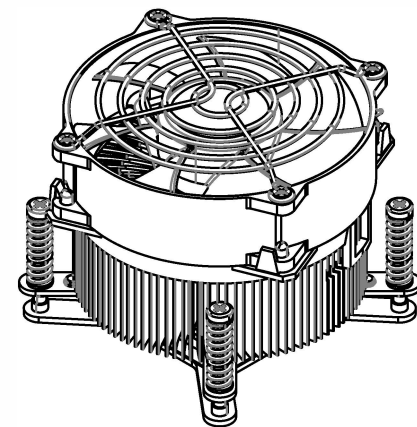
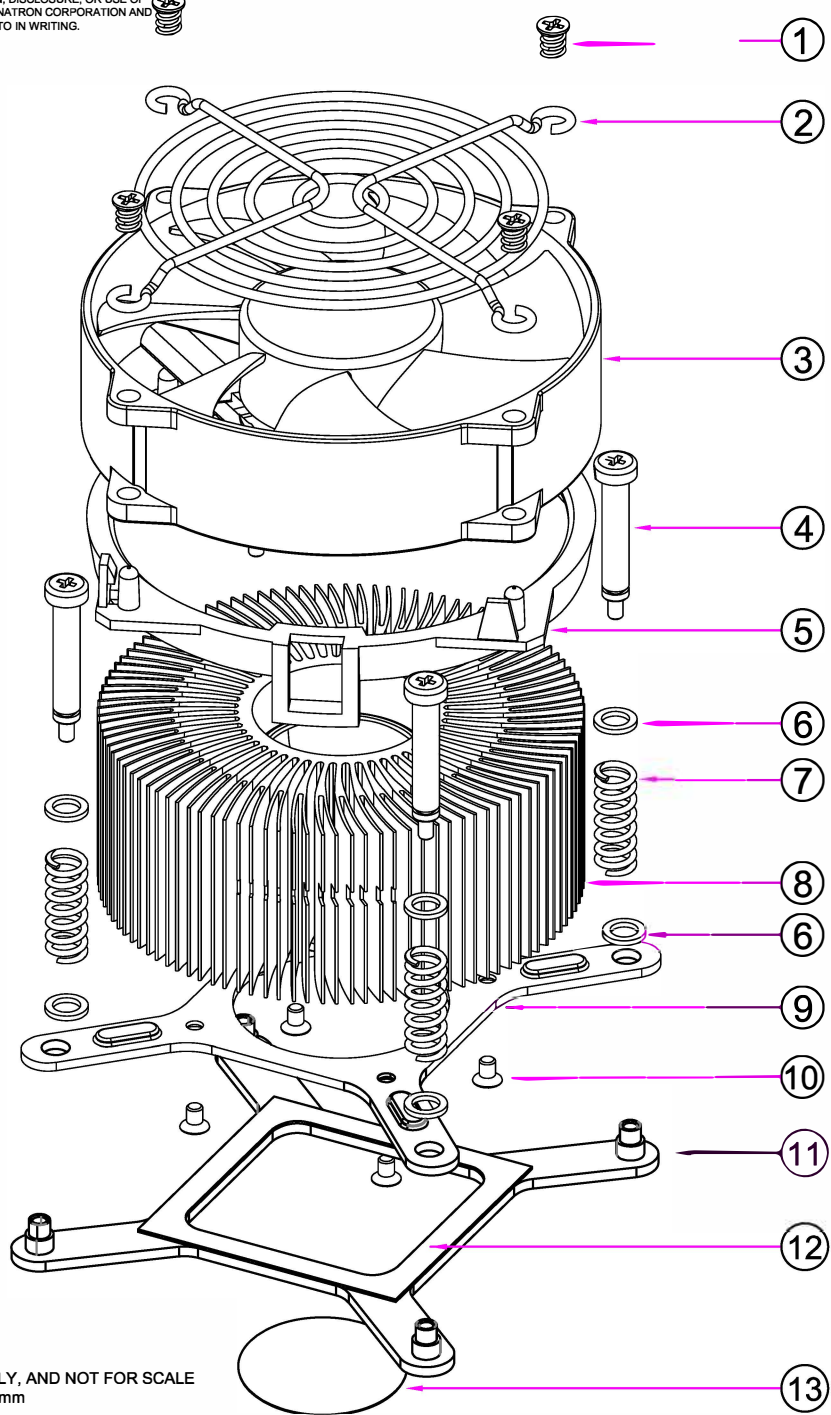


CONFIDENTIAL DOCUMENT

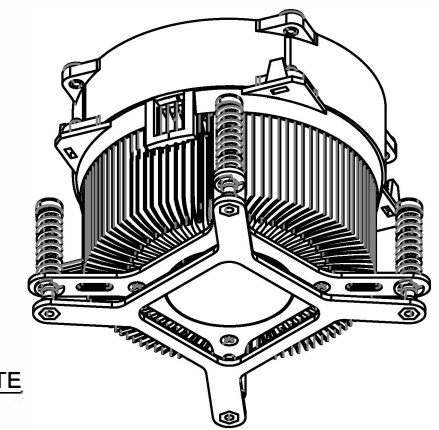
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| REV# | DESCRIPTION | CHECKER | DATE |
|------|-----------------|---------|------------|
| 0.0 | INITIAL RELEASE | LANG | 09/07/2022 |

ASSEMBLY PARTS



WHOLE SET OF HEATSINK



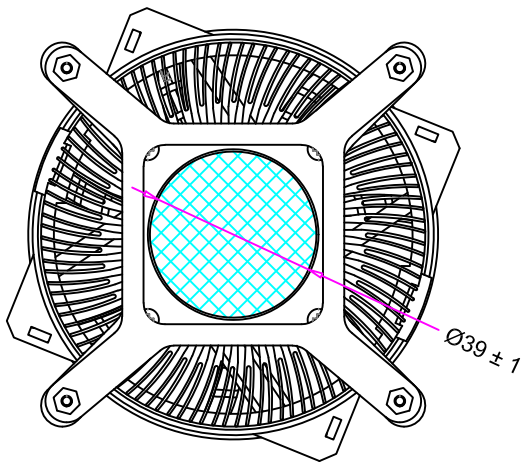
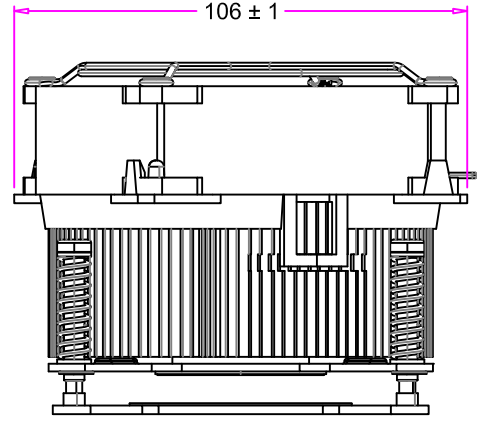
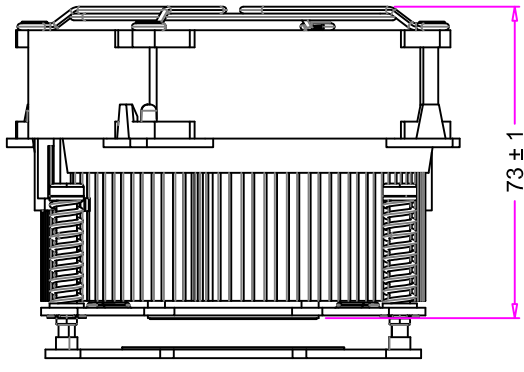
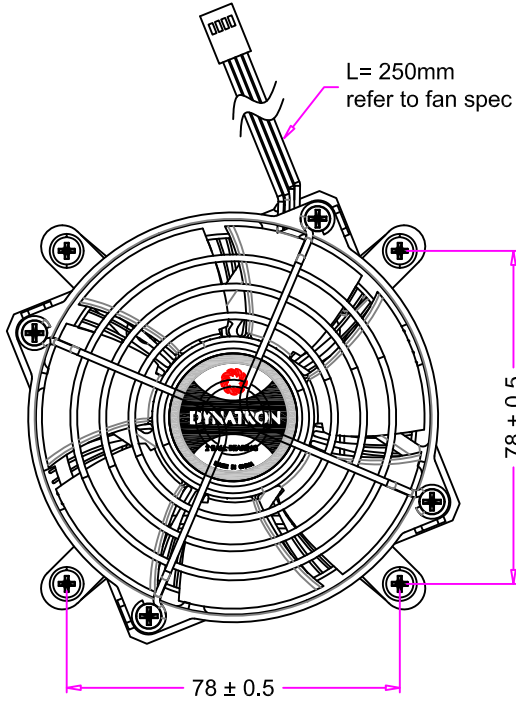
WHOLE PIECE OF BACKPLATE
(for Socket LGA 1700)

| 13 | THERMAL GREASE, PREPRINTED THK. = 0.2 mm , WHOLE CIRCLE | SHIN-ETSU 7762 | 1 |
|-------|---|----------------------|------|
| 12 | INSULATOR | PC | 1 |
| 11 | BACK PLATE | SPCC | 1 |
| 10 | SCREW, RETENTION MOUNTING | STEEL | 4 |
| 9 | RETENTION, SOCKET LGA1700 | SK7 | 1 |
| 8 | HEATSINK, RADIAL | COPPER CORE + AL.FIN | 1 |
| 7 | SPRING (50600670) | SUS 304 | 4 |
| 6 | SPACING WASHER, 1.0mm THK. | STEEL | 8 |
| 5 | RETENTION, FAN | PLASTIC | 1 |
| 4 | SCREW, HEATSINK (50902130) | STEEL | 4 |
| 3 | FAN, DF129225BM - PWM (3000RPM) | PLASTIC | 1 |
| 2 | FAN GUARD | STEEL | 1 |
| 1 | SCREW, FAN GUARD | STEEL | 4 |
| ITEM# | DESCRIPTION | MATERIAL | QTY. |

NOTES:
 1. THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE
 2. OVERALL DIMENSION: 106 x 106 x 73 mm
 3. OVERALL WEIGHT 480g

| DATE | NAME | DYNATRON CORPORATION | |
|------------|------|--|---------|
| 09/07/2022 | Engr | TITLE: 3U Active Cooler Model Q12 (sample IL-784) BOM & Exploded Assembly Drawing | |
| 09/07/2022 | LANG | | |
| | | | |
| | | | |
| | | | |
| DWG. No: | | DYN - EP - Q12 | REV 0.0 |

| REV# | DESCRIPTION | CHECKER | DATE |
|------|-----------------|---------|------------|
| 0.0 | INITIAL RELEASE | LANG | 01/09/2023 |



| | NAME | DATE |
|--------------|------|------------|
| DRAWN BY | ENGR | 01/09/2023 |
| CHECKED BY | LANG | 01/09/2023 |
| ENG.APPROVED | | |
| MFG.APPROVED | - | - |

DYNATRON CORPORATION

TOP MOTOR

TITLE: 3U Active Cooler Model **Q12**
(sample IL-784)
Overall Dimension Drawing

CONFIDENTIAL DOCUMENT

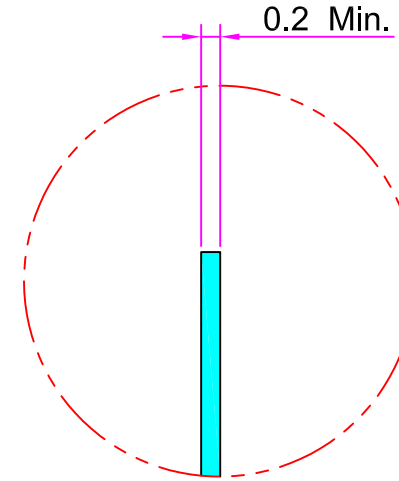
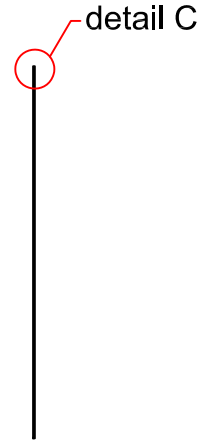
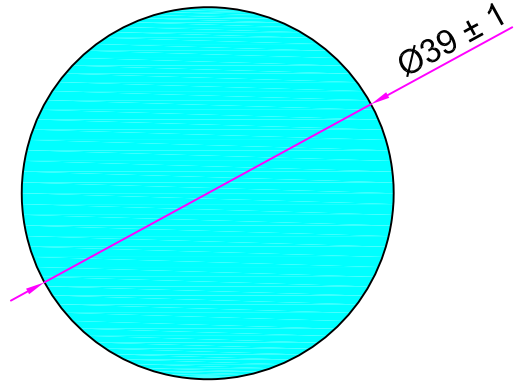
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| | | | |
|-------|----|----------------|------|
| VIEW | | DWG. No: | REV. |
| UNITS | MM | DYN - DM - Q12 | 0.0 |

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|-------|-----------------|---------|------------|
| 0.0 | INITIAL RELEASE | LANG | 09/07/2022 |



detail C
scale 10 : 1

NOTES:

1. UNIT: MM
2. MATERIAL : SHIN-ETSU 7762 OR EQUIVALENT

| | | | |
|------------|------------|------|--|
| | DATE | NAME |  DYNATRON CORPORATION |
| DRAWN | 09/07/2022 | enr | |
| CHECKED | 09/07/2022 | lang | |
| ENG. APPR. | | | |
| MFG. APPR. | | | |
| G.A. | | | TITLE: Thermal Grease Pre-printed Dimension Drawing |
| COMMENTS: | | | |
| DWG. No: | | | REV 0.0 |



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO,LTD

Specification for Approval

| | | |
|---|---|--|
| Customer: | | |
| Model Number: | DF129225BM (92*92*25mm) | |
| Part Number: | | |
| Issued Date: | Friday, January 22, 2016 | |
| Version: | | |
| Customer Approval | | |
| Approval: | Check: | |
| | | |
| Corporate Headquarters Dynatron Corporation 33200 Western Avenue Union City, CA 94587 U.S.A. Tel: 510-498-8888 Fax: 510-498-8488 | <i>Taipei Office</i> (Taiwan, R.O.C.) 8F, No. 35,Lane:221 Gang Cian. Road, Taipei, Taiwan, R.O.C. Tel: 886-2-27995799 (Rep.) Fax: 886-2-2799-9577 | Manufactory TOP MOTOR TECHNOLOGY(HUI ZHOU)CO,LTD Baishi Village, QiuchangTown, Huiyang Dist, HuizhouCity, Guangdong Province, P.R.China Tel: 86-752-822-8000 (Rep.) Fax: 86-752-822-8999 |
| Approval: | Check: | Handler: |
| Simon Wang | - | Hui mei |



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO,LTD

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1. SCOPE

This specification defines the electrical and mechanical characteristics of the □ AC/■DC Brush less(□Liquid State /■2-Balls Bearing) axial flow fan, which is carefully designed and manufactured for your special needs by Dynatron Corporation.

2. ELECTRICAL CHARACTERISTICS

| Items | | Description | | |
|-------|--|--|---|---|
| 1. | Rated Voltage | DC 12 V | | |
| 2. | Operating Voltage | 10.8V~13.2V | | |
| 3. | PWM Frequency 25KHz | Duty Cycle D=0~20% | Duty Cycle D=50% | Duty Cycle D=100% |
| 4. | Start Voltage | 7V | | |
| 5. | Air Flow – At rated voltage zero static pressure (minimal value) | 0.506m ³ / min (17.86CFM) | 0.759m ³ / min (26.79CFM) | 1.518m ³ / min (53.57CFM) |
| 6. | Static Pressure – At rated voltage At zero air flow | 0.48mm-H ₂ O (0.019inch-H ₂ O) | 1.07mm-H ₂ O (0.042inch-H ₂ O) | 4.29mm-H ₂ O (0.169inch-H ₂ O) |
| 7. | Input Current (Max.) | 0.05A | 0.10A | 0.25A |
| 8. | Speed | 1000RPM±200 | 1500RPM±10% | 3000RPM±10% |
| 9. | Acoustical Noise | 16.00dBA | 20.93dBA | 35.98dBA |
| 10. | Input Power | 0.60W | 0.12W | 3.00W |
| 11. | Insulation Resistance – Between Frame and Terminal | 10 M ohm at DC 500 V | | |
| 12. | Dielectric Strength – Between Frame and Terminal | 5 mA (Max.) @ AC 500 V 60 Hz 1 min. | | |
| 13. | Life – Continuous operating under normal temperature (40 °C or 104 °F) | 70,000 hours | | |
| 14. | Rotation | Anticlockwise Air Discharged | | |
| 15. | Lead Wires | UL 1007, awg 28 or Equivalent “-”: Black; “+”: Yellow; “S”: Green; “PWM”: Blue. | | |



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3. MECHANICAL CHARACTERISTICS

| Items | | Description |
|-------|----------------|------------------------|
| 1. | Dimension | Display as Drawing |
| 2. | Frame | PBT UL94V-0 (Black GP) |
| 3. | Impeller | PBT UL94V-0 (Black GP) |
| 4. | Bearing System | Two Balls Bearing |
| 5. | Weight | 81±5grams |

4. ENVIRONMENTAL

| Items | | Description |
|-------|-----------------------|--|
| 1. | Operating Temperature | - 10 °C ~ + 65 °C (65 %RH) |
| 2. | Storage Temperature | - 30 °C ~ + 70 °C (65 %RH) |
| 3. | Vibration Test | Displacement Amplitude: 0.75mm(Equivalent 10G) Frequency Range:10Hz<->55Hz/30SEC. Linear Scanning 120 Cycle Endurance Timer Per Axis:30Min. Orientation:X,Y,Z. |
| 4. | Drop Test | Motor withstands one free body drop from 30 cm in high onto 10 mm thickness of wooden board for each of the three faces in minimum packing condition. |
| 5. | Acoustic Noise | 16.00/20.93/35.98dBA – Curve (Max16.50/21.43/36.48dBA) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.) |

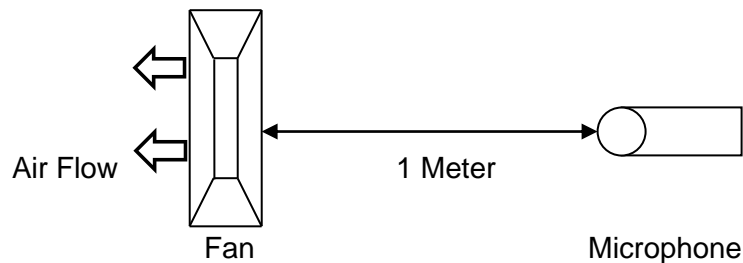


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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5. PROTECTION

| Items | | Description |
|-------|---------------------|---|
| 1. | Polarity Protection | For polarity error connection to power, the circuit withstands reversed connection between positive and negative leads. |

6. ATTACHMENTS

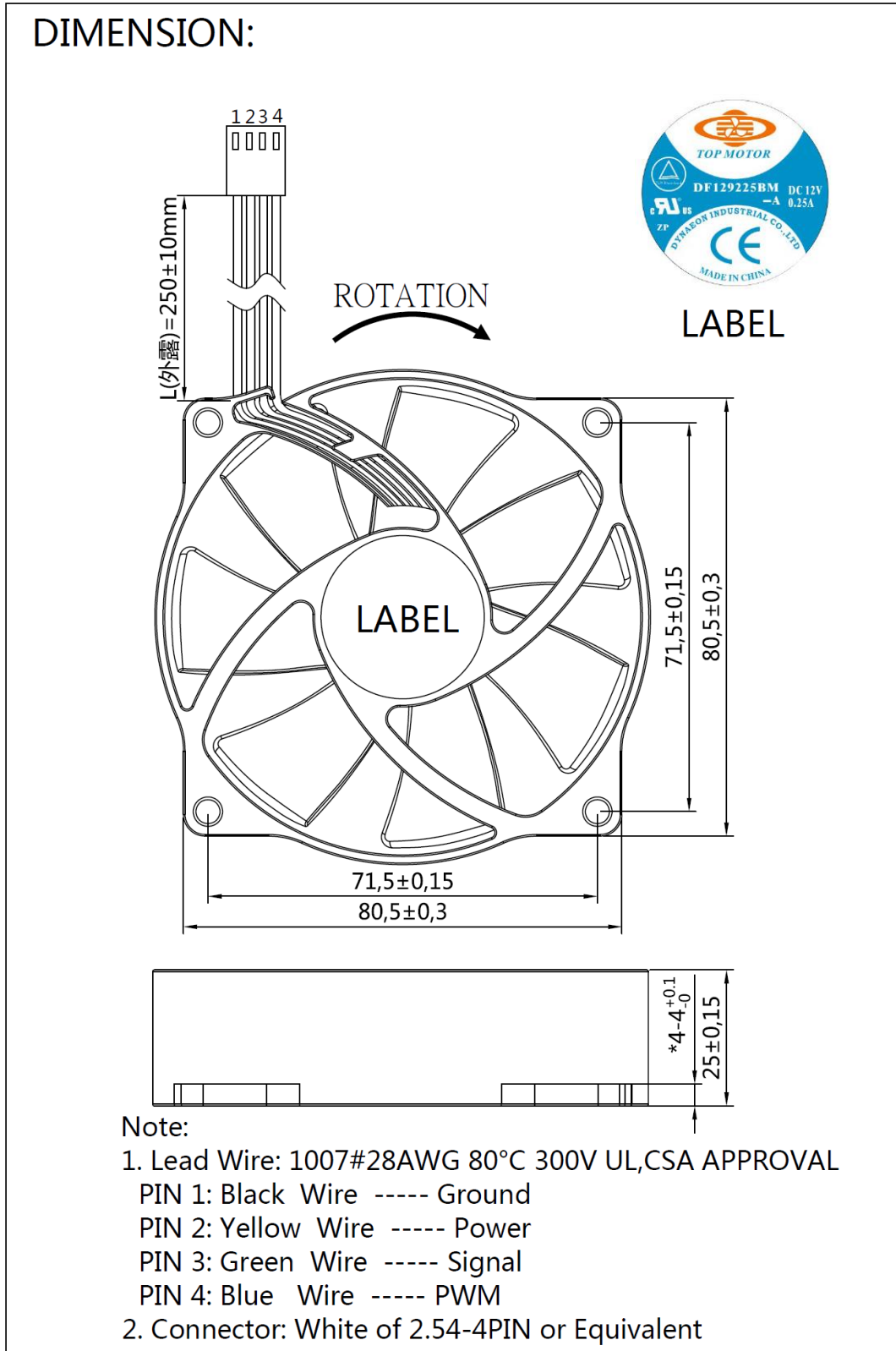
- 6.1. Product Dimension
- 6.2. Frequency Generator Output
- 6.3. TUV Certificate
- 6.4.UL Certificate
- 6.5. Electrical Specifications for PWM production



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6.1. Product Dimension





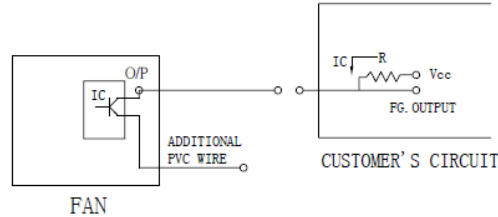
DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

6.2. Frequency Generator Output

FREQUENCY GENERATOR O/P:

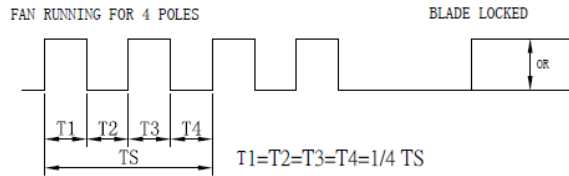
Frequency generator function is activated by an internal IC for customer's application.
Electrical schematic:



CUSTOMER'S CIRCUIT

Vcc = From +5 To +28 VDC (Generally using +12 or +24 VDC)
Ic = 5 mA max.
R = V/I (Output "R" value calculation)

- **SUPPLY A WAVEFORM:**



N=R.P.M. (Rotation speed will be different for various models
L/M/H/HH/VH/SH)

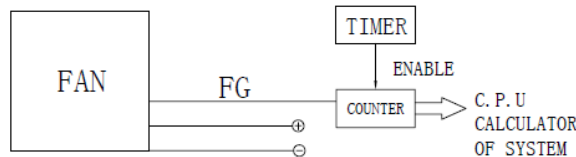
TS=60/N (Sec)

* Voltage level after blade locked

- **OUTPUT LEVEL:**

High = Vcc 10%
Low = 0~0.5V
Ic = 5 mA max.

- **APPLICATION:**



- **FUNCTIONS:**

- . By means of waveform & customer's design, schematic can reach alarm function, either in the form of buzzing or LED flashing. Adjust rotation speed.
- . When power supply output voltage level decreases, it will result in the lowering of fan rotation speed. The irregular situation will be controlled by using FG. O/P through P/S circuit to increase the output voltage and result in a stable rotation speed.



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6.3. TUV Certificate

| | | | | | |
|---|------------------|---|--|-------------------|------------|
| Zertifikat | | Certificate | | | |
| Zertifikat Nr. <i>Certificate No.</i> | R 50064443 | Blatt <i>Page</i> | 0007 | | |
| Ihr Zeichen <i>Client Reference</i> | 12046290/LC Tech | Unser Zeichen <i>Our Reference</i> | ZTW1-CCO- 10013649 006 | Ausstellungsdatum | 07.05.2007 |
| | | | <i>Date of Issue (day/mo/yr)</i> | | |
| Genehmigungsinhaber <i>License Holder</i> | | | Fertigungsstätte <i>Manufacturing Plant</i> | | |
| Dynaeon Industrial Co., Ltd. 8F, No. 35, 37, Lane 221 Gang Cian Rd. Neihu, Taipei 114 Taiwan, R.O.C. | | | Dynaeon Ind. Co., Ltd. Ta-Li Management Zone Ching-Hsi, Dongguan P.R. China | | |
| Prüfzeichen <i>Test Mark</i> | | Geprüft nach <i>Tested acc. to</i> | | | |
| | | EN 60950-1:2001+A11 | | | |
| Zertifiziertes Produkt <i>(Geräteidentifikation)</i> | | | Lizenzentgelte - Einheit | | |
| <i>Certified Product (Product Identification)</i> | | | <i>License Fee - Unit</i> | | |
| Ventilator (DC Fan) | | | | | |
| wie Blatt (as page) 01 | | | | | |
| Ergänzung (Addition) | | | | | |
| Bezeichnung : DP(X1)(X2)(X3)(X4)(X5)ZZZZZ-(X6) | | | | | |
| (Type Designation) | | | | | |
| (X1) steht für (stands for): 05, 12, 24 | | | | | |
| (X2) steht für (stands for): 12, 14, 15, 25, 40, 50, 60, 70, 77, 80, 92 | | | 1 | | |
| (X3) steht für (stands for): 10, 15, 20, 25, 28 | | | 1 | | |
| (X4) steht für (stands for): S, B, P, Q | | | | | |
| (X5) steht für (stands for): U, H, M, L, E | | | | | |
| (X6) steht für (stands for): A, B, C, D | | | 1 | | |
| Z steht für (stands for): A-Z, 0-9 oder (or) freibleibend (blank) | | | | | |
| Nennspannung : DC 5V ((X1)= 05); DC 12V ((X1)= 12); | | | | | |
| (Rated Voltage) DC 24V ((X1)= 24) | | | | | |
| Nennstrom : siehe Anlage | | | | | |
| (Rated Current) (see appendix) | | | | | |
| ANLAGE (Appendix): 1 | | | | | |
| <small>Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde. Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht. This certificate is based on our Testing and Certification Regulation. The product fulfills above mentioned requirements, the production is subject to surveillance.</small> | | | | | |
| TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln | | | | | |
| Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com | | | 3 | | |
| Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety | | | Zertifizierungsstelle | | |
| | | | | | |
| | | | Dipl.-Ing. F. Stöckel | | |



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TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

6.4.UL Certificate

15-10-29

GPWV2.E157868 - Fans, Electric - Component



ONLINE CERTIFICATIONS DIRECTORY

GPWV2.E157868 Fans, Electric - Component

[Page Bottom](#)

Fans, Electric - Component

[See General Information for Fans, Electric - Component](#)

DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

E157868

DC fans, Models D(F)1206(Z)(Y1)(X1), D(F)1207(Z)(Y1)(X1), where (F) may be F or C, (Z) may be SH, BH, BA, SM, BM, BB, SL, BL, BC, SD, BE, BF, SG, BI, BJ, SK, BN, BO, SP, BQ, BR, SS, BT, BU, SV, BW, BX, SY, BY or BZ, (Y1) may be "-", 0 through 9 or A through Z, (X1) may be 0 through 9 or A through Z.

Models DF248015(S)(X)(Y)(Z)(W), DF488015(S)(X)(Y)(Z)(W), where (S) may be S, B or P, (X) may be U, H, M or L, (Y) and (Z) may be any alphanumeric character, blank, "-" or any symbol, (W) may be seven any alphanumeric character, blank, "-" or any symbol.

Models DF121225(A)(B)(C), DF121225(A)E(C), DF241225(A)(B)(C), DF128015(A)U(C), DF128015(A)(B)(C), DF128025(A)U(C), DF128025(A)(B)(C), DF128025(A)E(C), DF248025(A)U(C), DF248025(A)(B)(C), DF129225(A)(B)(C), DF129225(A)E(C), DF249225(A)U(C), DF249225(A)(B)(C), DF126010(A)(B)(C), DF246025(A)U(C), DF246025(A)(B)(C), DF126025(A)U(C), DF126025(A)(B)(C), DF126025(A)E(C), DB126015BU(C), DB126015B(B)(C), DF123010(A)(B)(C), DF053010(A)(B)(C), DF127015(A)U(C), DF127015(A)(B)(C), DF245010(A)(B)(C), where (A) may be S, B, P or Q, (B) may be H, M or L, (C) may be xxxxxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Models DF122510(X)(Y2)(Z)-(M), DF124020(X)(Y2)(Z)-(M), DF244020(X)(Y1)(Z)-(M), DF126025(X)(Y3)(Z)-(M), DF246025(X)(Y3)(Z)-(M), DF121225(X)(Y1)(Z)-(M), DF124028(X)(Y3)(Z)-(M), where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be U, H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank, (M) may be A or B.

Models DF054010(X)(Y2)(Z1)(Z2)-A, DF054010(X)L(Z1)(Z2)-B, DF124010(X)(Y2)(Z1)(Z2)-A, DF124010(X)L(Z1)(Z2)-B, DF244010(X)(Y2)(Z1)(Z2)-A, DF125015(X)(Y1)(Z1)(Z2)-A, DF125020(X)(Y3)(Z1)(Z2)-A, DF126015(X)(Y1)(Z1)(Z2)-A, DF246015(X)M(Z1)(Z2)-A, DF246015(X)L(Z1)(Z2)-A, DF128020(X)(Y1)(Z1)(Z2)-A, DF128020(X)L(Z1)(Z2)-B, DB127015(X)(Y2)(Z)-A series, where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be H, M, L or E, (Z1) may be blank or 3, (Z2) is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF125010(X)(Y)(Z)-A, DF126020(X)(Y)(Z)-A, DF246020(X)(Y)(Z)-A, DF121525(X)(Y1)(Z)-A, DF121525(X)(Y2)(Z)-B series, Where (X) may be S, B, P or Q, (Y) may be H, M or L, (Y1) may be U, H or M, (Y2) may be L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF128025(X)(a)(Y)-A, DF121225(X)(b)(Y)-C, DF121225(X)E(Y)-C, DF127720(X)(a)(Y)-A, DF121425(X)(c)(Y)-A, DF126010(X)E(Y)-A series, where (X) may be S, B, P, Q, (a) may be H, M, L or E, (b) may be M or L, (c) may be U, H, M, L or E, (Y) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF054010(X)(Y1)(Z1)(Z2)-C, DF124010(X)(Y2)(Z1)(Z2)-C, DF244010(X)(Y2)(Z1)(Z2)-C, DF124020BU(Z1)(Z2)-C, DF124020(X)(Y1)(Z1)(Z2)-C, DF124028BU(Z1)(Z2)-C, DF124028(X)(Y1)(Z1)(Z2)-C, DF126025BU(Z1)(Z2)-C, DF126025(X)(Y1)(Z1)(Z2)-C, DF127015BU(Z1)(Z2)-A, DF127015(X)(Y1)(Z1)(Z2)-A, DF128025BU(Z1)(Z2)-B, DF128025(X)(Y1)(Z1)(Z2)-B, DF129225BU(Z1)(Z2)-A, DF129225(X)(Y1)(Z1)(Z2)-A, DF121225BU(Z1)(Z2)-D, DF121225(X)(Y1)(Z1)(Z2)-D, DF121425(X)(Y1)(Z1)(Z2)-B, DB127015BU(Z1)(Z2)-B, DB127015(X)(Y1)(Z1)(Z2)-B, DB058015(X)(Y3)(Z1)(Z2)-A, where (X) may be S, B, P or Q, where (Y1) may be H, M, L or E, where (Y2) may be U, H, M, L or E, where (Y3) may be M or L, where (Z1) may be blank or 3, where (Z2) may be is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DB128015(X)(Y1)-(Z)-A, DF128038(X)(Y1)-(Z)-A, DB121225(X)(Y2)-(Z)-A, DF054010(X)(Y2)-(Z)-D, DF124010(X)(Y3)-(Z)-D, DF244010(X)(Y4)-(Z)-D, DF125010(X)(Y2)-(Z)-B, DF126010(X)(Y5)-(Z)-B series, where (X) may be S, B, P, Q, (Y1) may be U, H, M, L or E, (Y2) may be H, M or L, (Y3) may be U, M, L or E, (Y4) may be U, H, M or L, (Y5) may be H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Series 7515: Models DB127515(X)U-ZZZZ-(A), DB127515(X)H-ZZZZ-(A), DB127515(X)M-ZZZZ-(A), DB127515(X)L-ZZZZ-(A).

Series 9225: Models DF129225(X)U-ZZZZ-(A), DF129225(X)H-ZZZZ-(A), DF129225(X)M-ZZZZ-(A), DF129225(X)L-ZZZZ-(A).

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DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

15-10-29

GPWW2.E157868 - Fans, Electric - Component

Models DB128015(X)(Y)-(Z)-B and DF126028(X)(W)-(Z)-A series, where (X) may be S, B, P or Q; (Y) may be U, H, M or L; (W) may be U, H, M, L or E; (Z) stands for five variables, each may be A through Z, 0 through 9 or blank.


Model DF124028(X)(Y)-(Z)-D, where (X) may be S, B, P or Q; (Y) may be U, H, M, L, E; (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Electric fans, Models DC0504, -1204, -1205, -1206, DF1204, -1208, -2408, -0504, -0505, -1205, -2406 followed by "S" or "B", followed by two alphanumeric characters.

Low voltage fans, Models DB1206, DF1209, -1212, -2409, DH1204 followed by B or S, followed by two alphanumeric characters.

Models DF124056(X)(Y)-(Z)-(Z1), DF126038(X)(Y)-(Z)-(Z1), DB129015(X)(Y)-(Z)-(Z1) and DB129215(X)(Y)-(Z)-(Z1); where (X) may be S, B, P, Q; (Y) may be U, H, M, L, E; (Z) may be a through Z, 0 through 9 or blank; (Z1) may be A, B, C or D.



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TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

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GPWV8.E157868 - Fans, Electric Certified for Canada - Component



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DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

E157868

DC fans, Models D(F)1206(Z)(Y1)(X1), D(F)1207(Z)(Y1)(X1), where (F) may be F or C, (Z) may be SH, BH, BA, SM, BM, BB, SL, BL, BC, SD, BE, BF, SG, BI, BJ, SK, BN, BO, SP, BQ, BR, SS, BT, BU, SV, BW, BX, SY, BY or BZ, (Y1) may be "-", 0 through 9 or A through Z, (X1) may be 0 through 9 or A through Z.

Models DF248015(S)(X)(Y)(Z)(W), DF488015(S)(X)(Y)(Z)(W), where (S) may be S, B or P, (X) may be U, H, M or L, (Y) and (Z) may be any alphanumeric character, blank, "-" or any symbol, (W) may be seven any alphanumeric character, blank, "-" or any symbol.

Models DF121225(A)(B)(C), DF121225(A)E(C), DF241225(A)(B)(C), DF128015(A)U(C), DF128015(A)(B)(C), DF128025(A)U(C), DF128025(A)(B)(C), DF128025(A)E(C), DF248025(A)U(C), DF248025(A)(B)(C), DF129225(A)(B)(C), DF129225(A)E(C), DF249225(A)U(C), DF249225(A)(B)(C), DF126010(A)(B)(C), DF246025(A)U(C), DF246025(A)(B)(C), DF126025(A)U(C), DF126025(A)(B)(C), DF126025(A)E(C), DB126015BU(C), DB126015B(B)(C), DF123010(A)(B)(C), DF053010(A)(B)(C), DF127015(A)U(C), DF127015(A)(B)(C), DF245010(A)(B)(C), where (A) may be S, B, P or Q, (B) may be H, M or L, (C) may be xxxxxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Models DF122510(X)(Y2)(Z)-(M), DF124020(X)(Y2)(Z)-(M), DF244020(X)(Y1)(Z)-(M), DF126025(X)(Y3)(Z)-(M), DF246025(X)(Y3)(Z)-(M), DF121225(X)(Y1)(Z)-(M), DF124028(X)(Y3)(Z)-(M), where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be U, H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank, (M) may be A or B.

Models DF054010(X)(Y2)(Z1)(Z2)-A, DF054010(X)L(Z1)(Z2)-B, DF124010(X)(Y2)(Z1)(Z2)-A, DF124010(X)L(Z1)(Z2)-B, DF244010(X)(Y2)(Z1)(Z2)-A, DF125015(X)(Y1)(Z1)(Z2)-A, DF125020(X)(Y3)(Z1)(Z2)-A, DF126015(X)(Y1)(Z1)(Z2)-A, DF246015(X)M(Z1)(Z2)-A, DF246015(X)L(Z1)(Z2)-A, DF128020(X)(Y1)(Z1)(Z2)-A, DF128020(X)L(Z1)(Z2)-B, DB127015(X)(Y2)(Z)-A series, where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be H, M, L or E, (Z1) may be blank or 3, (Z2) is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF125010(X)(Y)(Z)-A, DF126020(X)(Y)(Z)-A, DF246020(X)(Y)(Z)-A, DF121525(X)(Y1)(Z)-A, DF121525(X)(Y2)(Z)-B series, Where (X) may be S, B, P or Q, (Y) may be H, M or L, (Y1) may be U, H or M, (Y2) may be L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF128025(X)(a)(Y)-A, DF121225(X)(b)(Y)-C, DF121225(X)E(Y)-C, DF127720(X)(a)(Y)-A, DF121425(X)(c)(Y)-A, DF126010(X)E(Y)-A series, where (X) may be S, B, P, Q, (a) may be H, M, L or E, (b) may be M or L, (c) may be U, H, M, L or E, (Y) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF054010(X)(Y1)(Z1)(Z2)-C, DF124010(X)(Y2)(Z1)(Z2)-C, DF244010(X)(Y2)(Z1)(Z2)-C, DF124020BU(Z1)(Z2)-C, DF124020(X)(Y1)(Z1)(Z2)-C, DF124028BU(Z1)(Z2)-C, DF124028(X)(Y1)(Z1)(Z2)-C, DF126025BU(Z1)(Z2)-C, DF126025(X)(Y1)(Z1)(Z2)-C, DF127015BU(Z1)(Z2)-A, DF127015(X)(Y1)(Z1)(Z2)-A, DF128025BU(Z1)(Z2)-B, DF128025(X)(Y1)(Z1)(Z2)-B, DF129225BU(Z1)(Z2)-A, DF129225(X)(Y1)(Z1)(Z2)-A, DF121225BU(Z1)(Z2)-D, DF121225(X)(Y1)(Z1)(Z2)-D, DF121425(X)(Y1)(Z1)(Z2)-B, DB127015BU(Z1)(Z2)-B, DB127015(X)(Y1)(Z1)(Z2)-B, DB058015(X)(Y3)(Z1)(Z2)-A, where (X) may be S, B, P or Q, where (Y1) may be H, M, L or E, where (Y2) may be U, H, M, L or E, where (Y3) may be M or L, where (Z1) may be blank or 3, where (Z2) may be is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DB128015(X)(Y1)-(Z)-A, DF128038(X)(Y1)-(Z)-A, DB121225(X)(Y2)-(Z)-A, DF054010(X)(Y2)-(Z)-D, DF124010(X)(Y3)-(Z)-D, DF244010(X)(Y4)-(Z)-D, DF125010(X)(Y2)-(Z)-B, DF126010(X)(Y5)-(Z)-B series, where (X) may be S, B, P, Q, (Y1) may be U, H, M, L or E, (Y2) may be H, M or L, (Y3) may be U, M, L or E, (Y4) may be U, H, M or L, (Y5) may be H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Series 7515: Models DB127515(X)U-ZZZZ-(A), DB127515(X)H-ZZZZ-(A), DB127515(X)M-ZZZZ-(A), DB127515(X)L-ZZZZ-(A).

Series 9225: Models DF129225(X)U-ZZZZ-(A), DF129225(X)H-ZZZZ-(A), DF129225(X)M-ZZZZ-(A), DF129225(X)L-ZZZZ-(A).



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Models DB128015(X)(Y)-(Z)-B and DF126028(X)(W)-(Z)-A series, where (X) may be S, B, P or Q; (Y) may be U, H, M or L; (W) may be U, H, M, L or E; (Z) stands for five variables, each may be A through Z, 0 through 9 or blank.

Model DF124028(X)(Y)-(Z)-D, where (X) may be S, B, P or Q; (Y) may be U, H, M, L, E; (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Electric fans, Models DC0504, -1204, -1205, -1206, DF0504, -0505, -1204, -1205, -1208, -2406, -2408 followed by "S" or "B", followed by two alphanumeric characters.

Low voltage fans, Models DB1206, DF1209, -1212, -2409, DH1204 followed by B or S, followed by two alphanumeric characters.

Models DF124056(X)(Y)-(Z)-(Z1), DF126038(X)(Y)-(Z)-(Z1), DB129015(X)(Y)-(Z)-(Z1) and DB129215(X)(Y)-(Z)-(Z1); where (X) may be S, B, P, Q; (Y) may be U, H, M, L, E; (Z) may be a through Z, 0 through 9 or blank; (Z1) may be A, B, C or D.



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6.5. Electrical Specifications for PWM production

USA Dynatron Corp.

Electrical Specifications for PWM production

Voltage

Fan operating voltage shall be within the range 12V \pm 1.2V.

Current

Peak fan current draw during start-up operation(with 13.2V applied,with fan operating in the free stream condition)shall not exceed 2.0 A.

Fan current spike during start-up operation(with 13.2V applied with fan operating in the free stream condition)shall be allowed to exceed 1.0 A for a duration of no greater than 1.0 sec.

Tachometer Output Signal

Fan shall provide tachometer output signal with the following characteristics:

- * Two pulses per revolution
- * Open-collector or open-drain type output
- * Motherboard will have a pull up to 12V, maximum 13.2V

PWM Control Input Signal

The following requirements are measured at the PWM(control) pin of the fan cable

connector:PWM Frequency:Target frequency 25kHz,

acceptable operational range 21 kHz to 28 KHz

Maximum voltage for logic low:VIL=0.8V

Absolute maximum current sourced:Imax=5mA(short circuit current)

Absolute maximum voltage level:Vmax=5.25V(open circuit voltage)

Fan Speed Control

1.1Maximum Fan Speed Requirements

The maximum fan speed shall be specified for the fan model by the vendor and correspond to 100% duty cycle PWM signal input.

1.2 Minimum Fan Speed Requirements

The vendor shall specify the minimum RPM and the corresponding PWM duty cycle. This specified minimum RPM shall be 30% of maximum RPM or less.The fan shall be able to start and run at this RPM. To allow a lower specified minimum RPM,it is acceptable to provide a higher PWM duty cycle to the fan motor for a short period of time for startup conditions.This pulse should not exceed 30% maximum RPM and should last no longer than 2 seconds.



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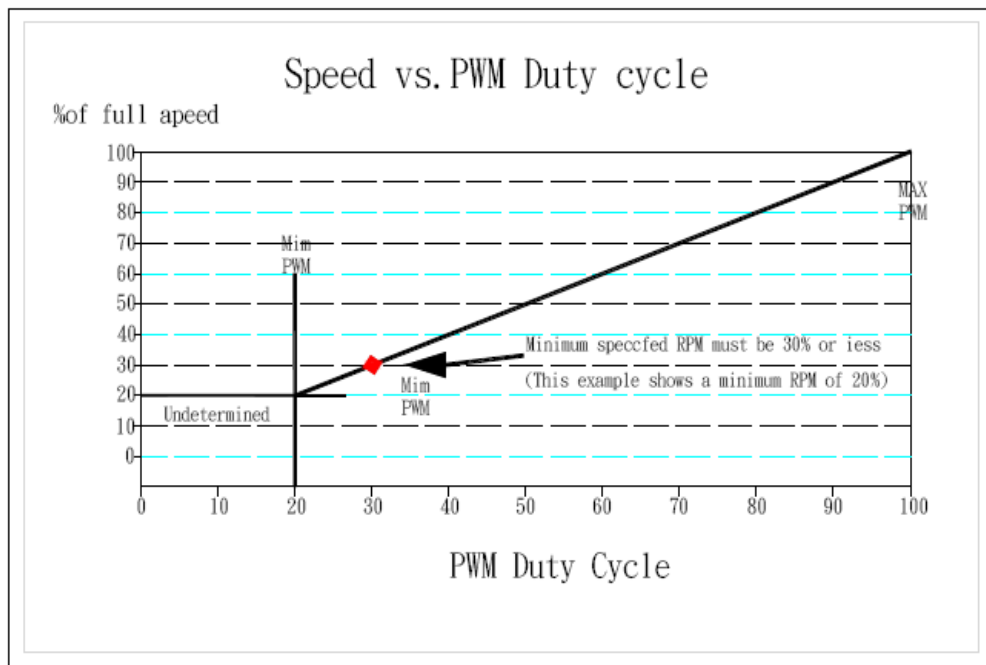
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USA Dynatron Corp.

1.3 Fan Speed Response PWM Control Input Signal

The PWM input shall be delivered to the fan through the control signal on Pin4. Fan speed response to this signal shall be a continuous and monotonic of the duty cycle of the signal, from 100% to the minimum specified RPM. The fan RPM (as a percentage of maximum RPM) should match the PWM duty cycle within $\pm 10\%$. If no control signal is present the fan shall operate at maximum RPM.

Figure 1 Fan speed Response to PWM Control input Signal



1.4 Operation Below Minimum RPM

For all duty cycles less than the minimum duty cycle, the RPM shall not be greater than the minimum RPM. The following graphs and definitions show three recommended solutions to handle PWM duty cycles that are less than the minimum operational PWM, as a percentage of maximum.

Reference resource by Intel's 4-wire PWM Fan controlled specification.



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