



# S3-4710

1U Active Air Cooler

**PRODUCT SPECIFICATIONS**

## Model Number: S3-4710

- Recommend for Intel® CPU as following
  - Intel® Granit Rapids SP, Socket FCLGA 4710
- Active Cooler for 1U Server & Up

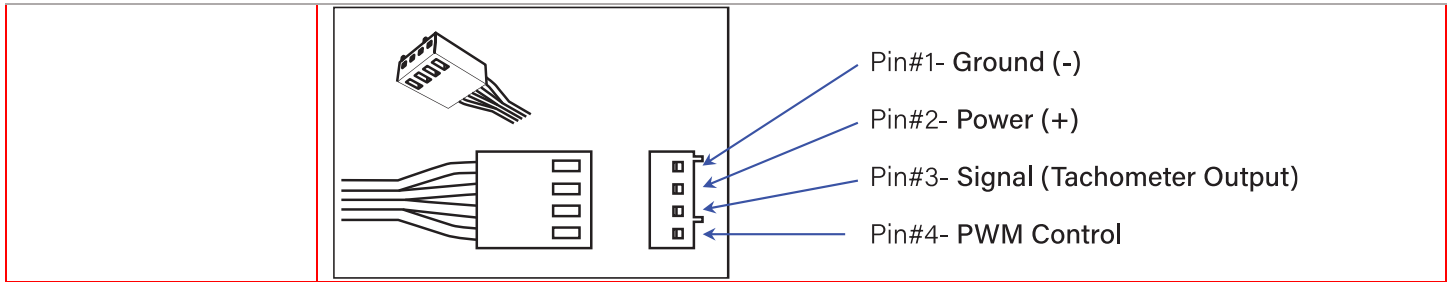
## Overall Specification

Dimension	118 x 80 x 27 mm
Weight	424.6 g
Material	Copper 1100 Heatsink with Vapor Chamber Base
Fan	8013 Steel Dual-Outlet Blower with PWM Function
Mounting Method	Intel LGA 4677 standard Mounting Kits
Package Carrier	PHM Package Carrier is included
Thermal Grease	SHIT-ETSU X23-8079-2
TDP	Support CPU Power up to 205 Watts Heat Dissipation

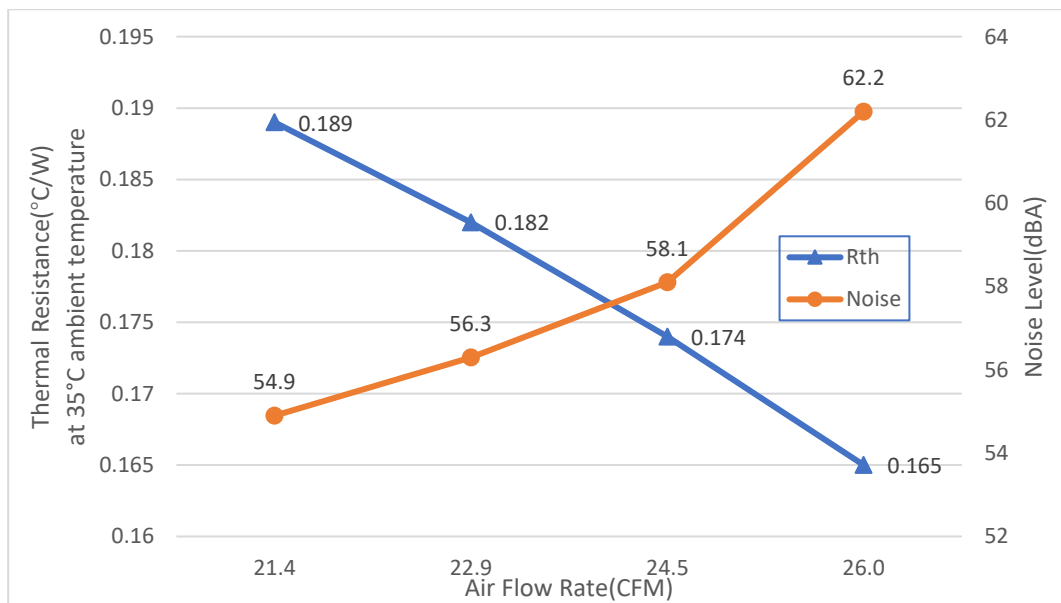
## Cooling Fan Specification

Model Number	DB128013BU-PWM(Dual-Outlet)
Dimension	φ80 x 13 mm
Bearing	Double Ball
Rated Voltage	12V
Rated Speed	At Duty Cycle 0~20%: 2000± 200 RPM At Duty Cycle 50%: 4900± 10% RPM At Duty Cycle 100%: 8600±10% RPM
Input Power	At Duty Cycle 0~20%: 1.08 W At Duty Cycle 50%: 4.7 W At Duty Cycle 100%: 23.45 W
Maximum Airflow	At Duty Cycle 0~20%: 5.59 CFM At Duty Cycle 50%: 14.76 CFM At Duty Cycle 100%: 26.25 CFM
Rated Static Pressure	At Duty Cycle 0~20%: 3.69 mm-H2O At Duty Cycle 50%: 25.28 mm-H2O At Duty Cycle 100%: 89.90 mm-H2O
Acoustical Noise	At Duty Cycle 0~20%: 23.3 dBA At Duty Cycle 50%: 43.5 dBA At Duty Cycle 100%: 62.2 dBA
Lead Wire Pin Out	Pin#1- Black(-) Pin#2- Yellow(+) Pin#3- Green(Tachometer/ Signal Output) Pin#4- Blue (PWM)

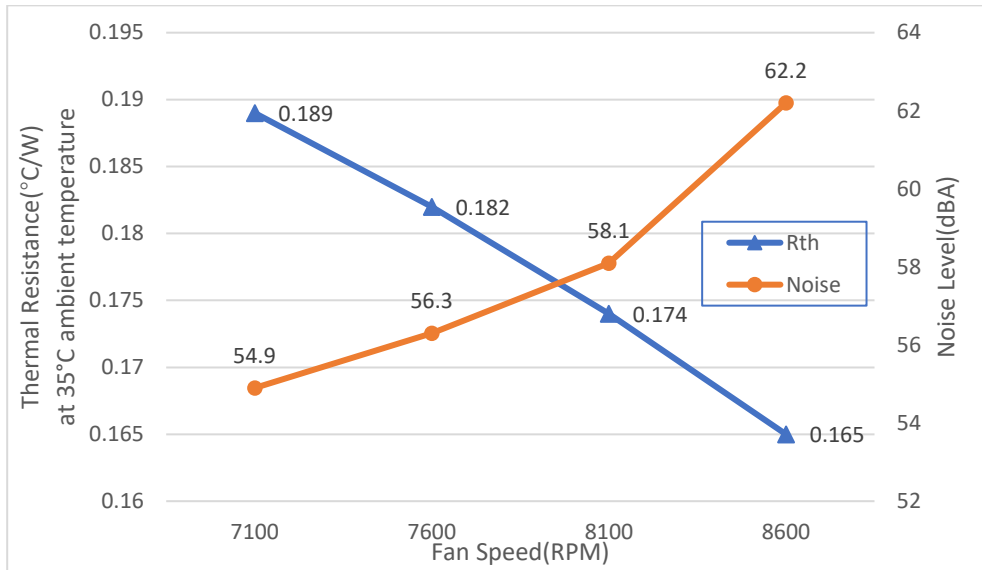
**S3-4710 | Socket LGA 4710**



**Performance Chart: Active Cooler S3-4710 Thermal Resistance  
 Active Cooler S3 Cooling Performance vs. Airflow**



## Active Cooler S3-4710 Cooling Performance vs. Fan Speed



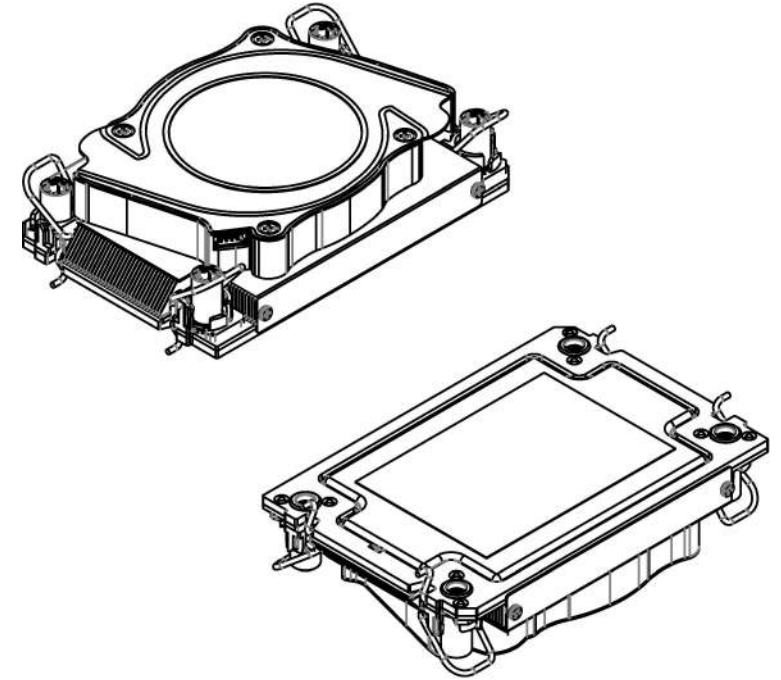
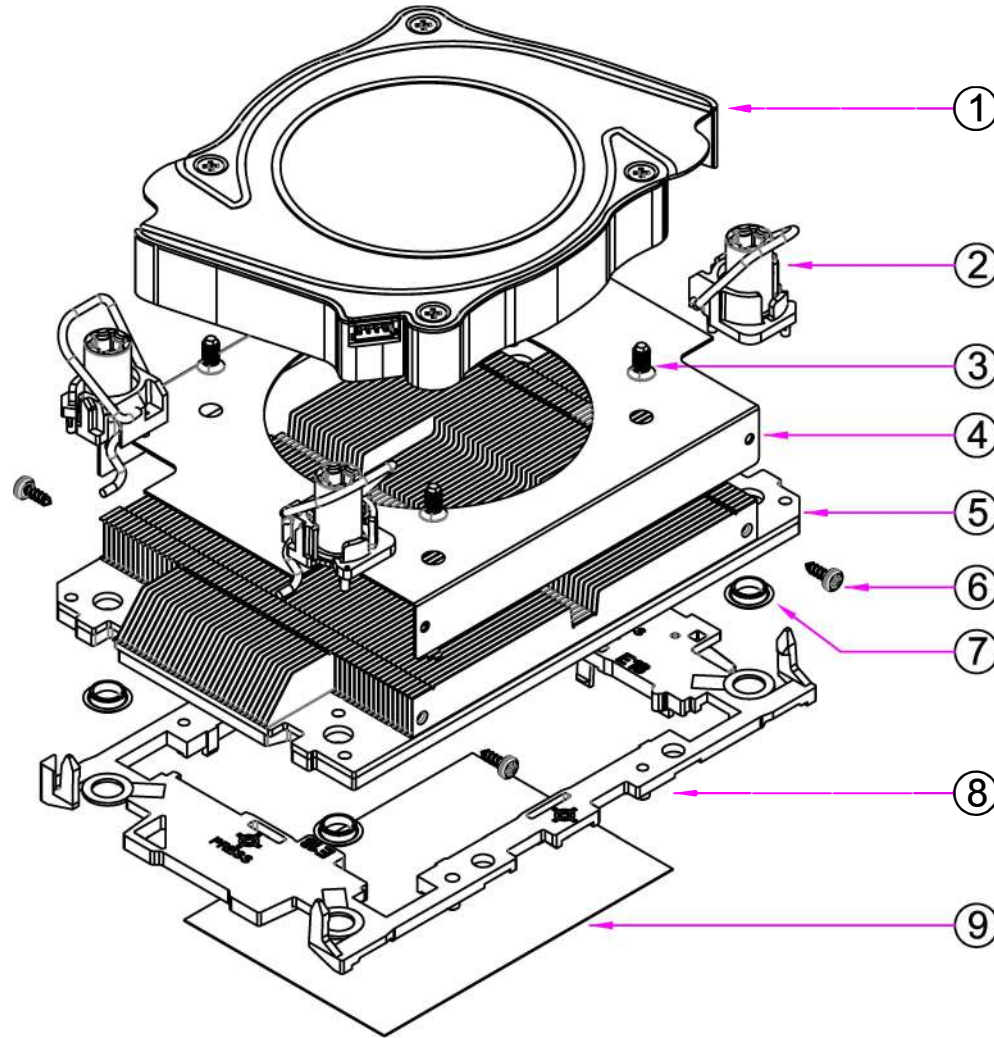
**CONFIDENTIAL DOCUMENT**

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO DYNATRON CORPORATION AND DYNAEON INDUSTRIAL CO., LTD. ANY REPRODUCTION, DISCLOSURE, OR USE OF THIS DRAWING IS EXPRESSLY PROHIBITED EXCEPT AS DYNATRON CORPORATION AND DYNAEON INDUSTRIAL CO., LTD. MAY OTHERWISE AGREE TO IN WRITING.

REV#	DESCRIPTION	CHECKER	DATE
0.0	INITIAL RELEASE	LANG	03/26/2021

**ASSEMBLY PARTS**


**WHOLE SET OF HEATSINK**



**NOTES:**

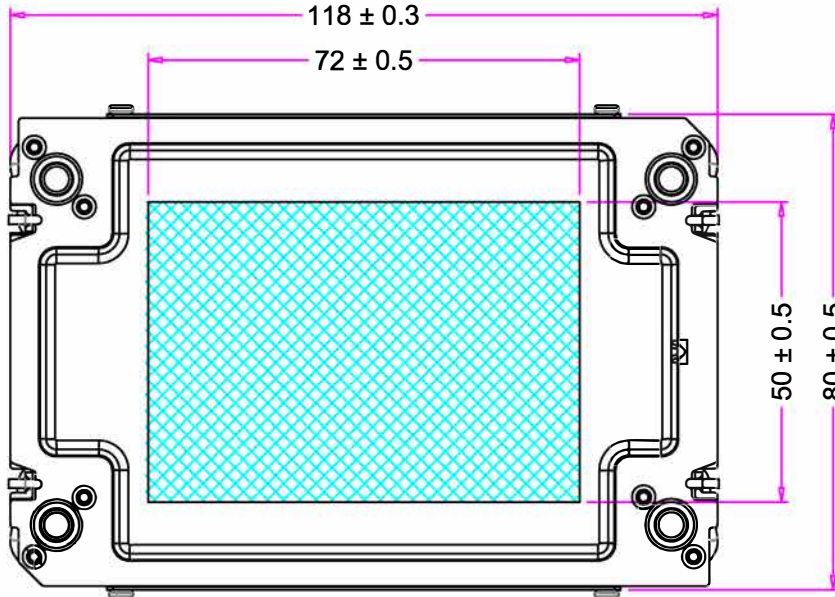
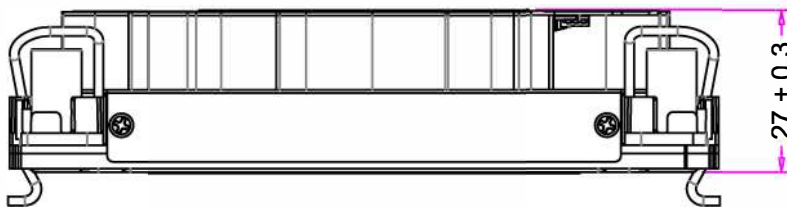
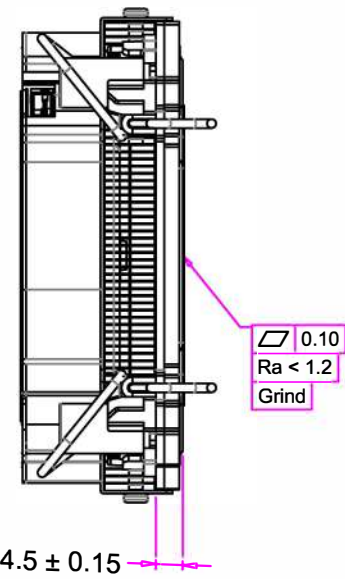
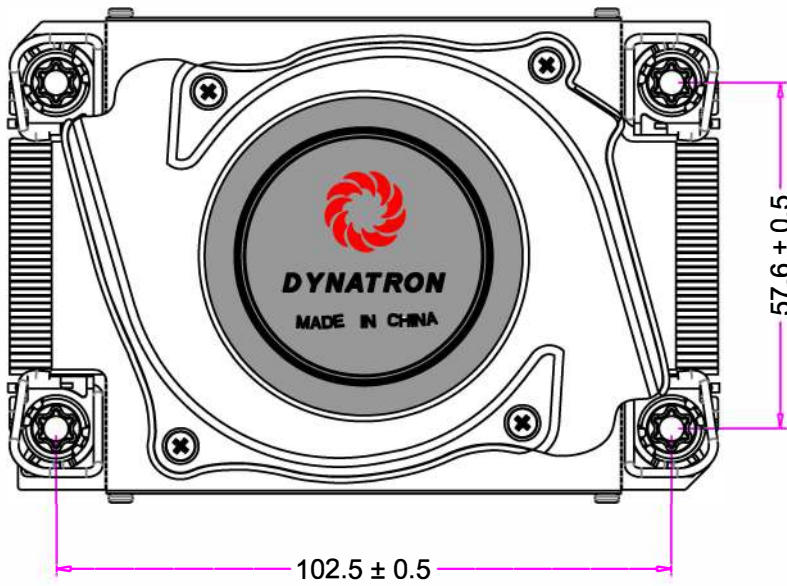
1. THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE
2. OVERALL DIMENSION : 118 x 80 x 27 mm
3. OVERALL WEIGHT : 500 g

9	THERMAL GREASE, PRE-PRINT	SHIN-ETSU 7762	1
8	PHM PACKAGE CARRIER	PLASTIC	1
7	SPACER RING	PLASTIC	4
6	SCREW, BLOWER COVER MOUNTING	STEEL	4
5	HEATSINK, STACKED FIN	COPPER 1100, VC BASE SK7 STIFFENER COPPER 1100 FIN	1
4	BLOWER COVER	SPCC	1
3	SCREW, BLOWER MOUNTING	STEEL	4
2	ANTI-TILT ROTATING WIRE ASSEMBLY SET	PLASTIC NUT AND CAPTIVATION STEEL ROTATING WIRE	4
1	BLOWER, DB128013BM - PWM ( DUAL - OUTLET, 8500 RPM )	STEEL FRAME	1
ITEM#	DESCRIPTION	MATERIAL	QTY.

DATE	NAME	 <b>DYNATRON CORPORATION</b>	
03/26/2021	Engr		
CHECKED	LANG	<b>TITLE:</b> 1U Active Cooler Model <b>S3-4710</b> BOM & Exploded Assembly Drawing	
ENG. APPR.			
MFG. APPR.			
Q.A.			
COMMENTS:		DWG. No:	REV
		<b>DYN-EP-S3-4710</b>	<b>0.0</b>

1 2 3 4 5 6 7

REV#	DESCRIPTION	CHECKER	DATE
0.0	INITIAL RELEASE	LANG	03/26/2021



	NAME	DATE
DRAWN BY	engr	03/26/2021
CHECKED BY	LANG	03/26/2021
ENG. APPROVED		
MFG. APPROVED	-	-



**DYNATRON CORPORATION**

TOP MOTOR

TITLE: 1U Active Cooler Model  
**S3-4710** Overall  
Dimension Drawing

**CONFIDENTIAL DOCUMENT**

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO DYNATRON CORPORATION AND DYNAEON INDUSTRIAL CO., LTD. ANY REPRODUCTION, DISCLOSURE, OR USE OF THIS DRAWING IS EXPRESSLY PROHIBITED EXCEPT AS DYNATRON CORPORATION AND DYNAEON INDUSTRIAL CO., LTD. MAY OTHERWISE AGREE TO IN WRITING.

VIEW	
UNITS	MM

DWG. No:

**DYN-DM-S3-4710**

REV.  
**0.0**

1 2 3 4 5 6 7



# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## Specification for Approval

Customer:		
Model Number:	DF128013BU (dual-outlet, 80*80*13mm)	
Part Number:		
Issued Date:	Thursday, May 20, 2020	
Version:	A	
Customer Approval		
Approval:	Check:	
Corporate Headquarters <b>Dynatron Corporation</b> 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: <b>TOP MOTOR</b> <b>TECHNOLOGY(HUI</b> <b>ZHOU)CO,LTD</b> Baishi Village, QiuchangTown, Huiyang Dist, HuizhouCity, Guangdong Province, P.R.China Tel: 86-752-822-8000 (Rep.) Fax: 86-752-822-8999
Approval:	Tester:	Handler:
Glen Gao	Conrad Yu	Simon Wang



# DYNATRON CORPORATION

*TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD*

	CONTENTS	Page
1.	SCOPE	3
2.	ELECTRICAL CHARACTERISTICS	3
3.	MECHANICAL CHARACTERISTICS	4
4.	ENVIRONMENTAL	4
5.	PROTECTION	5
6.	ATTACHMENTS	
	6.1. Product Dimension	6
	6.2. Frequency Generator Output.	7
	6.3. TUV Certificate	8
	6.4. UL Certificate	9-12
	6.5. Electrical specifications for PWM production	13-14



# DYNATRON CORPORATION

TOP MOTOR

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 1. SCOPE

This specification defines the electrical and mechanical characteristics of the  AC /  DC Brush less ( Liquid State Ball /  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)	0.158m <sup>3</sup> / min (5.59CFM)	0.418m <sup>3</sup> / min (14.76CFM)	0.743m <sup>3</sup> / min (26.25CFM)
6.	Static Pressure – At rated voltage At zero air flow	3.69mm-H <sub>2</sub> O (0.145inch-H <sub>2</sub> O)	25.28mm-H <sub>2</sub> O (0.995inch-H <sub>2</sub> O)	89.8mm-H <sub>2</sub> O (3.535inch-H <sub>2</sub> O)
7.	Input Current (Max.)	0.09A	0.39A	1.95A
8.	Speed	2000RPM±200	4900RPM±10%	8600RPM±10%
9.	Acoustical Noise	23.3dBA	43.5dBA	62.2dBA
10.	Input Power	1.08W	4.68W	23.45W
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 1061, awg 26 or Equivalent “-”: Black; “+”: Yellow; “S”: Green. “PWM”:Blue		



# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 3. MECHANICAL CHARACTERISTICS

Items		Description
1.	Dimension	Display as Drawing
2.	Frame	Aluminum
3.	Impeller	PBT UL94V-0 (Black GP)
4.	Bearing System	Two ball Bearing
5.	Weight	57±10grams

## 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	0.9/8.5/23.5dBA – Curve (Max1.4/9.0/24.0) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

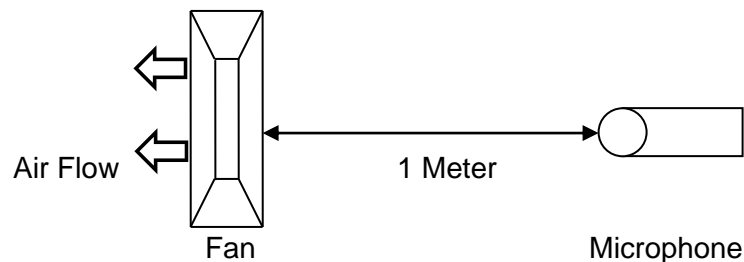


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.

## 5. PROTECTION



# DYNATRON CORPORATION

*TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD*

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

## 6. ATTACHMENTS

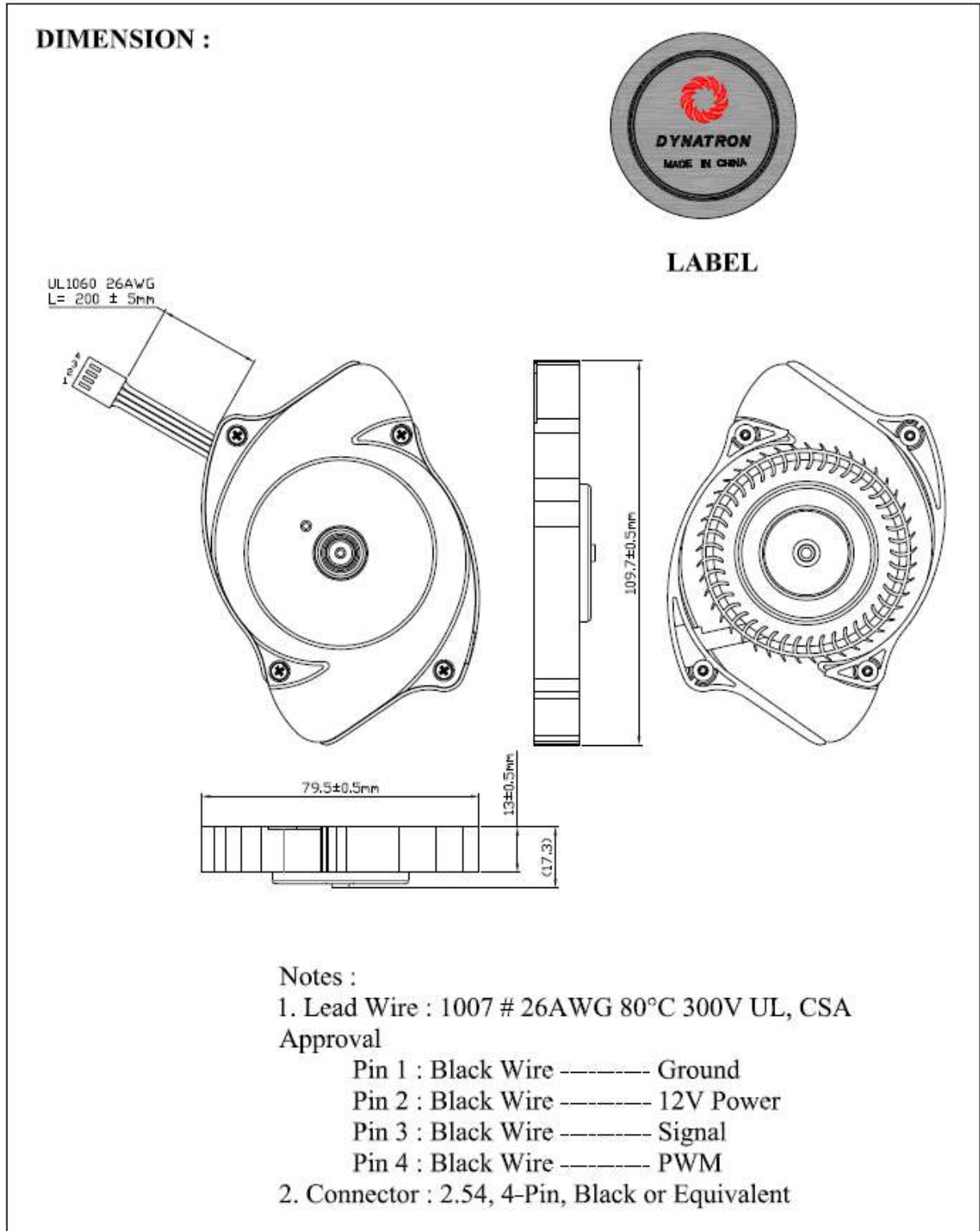
- 6.1. Product Dimension
- 6.2. Frequency Generator Output
- 6.3. TUV Certificate
- 6.4. UL Certificate
- 6.5. Electrical Specifications for pwm production



# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 6.1. Product Dimension





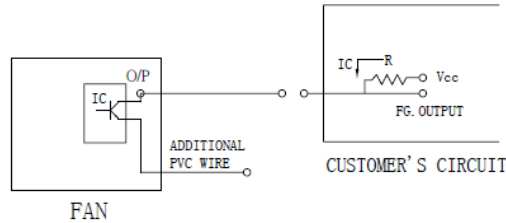
# DYNATRON CORPORATION

## 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:



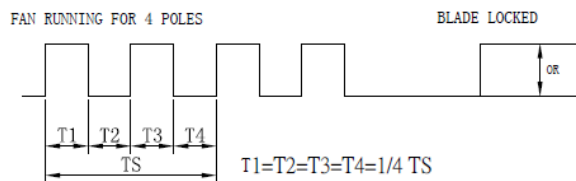
#### CUSTOMER'S CIRCUIT

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

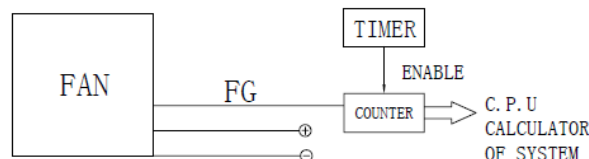
#### ● OUTPUT LEVEL:

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.



# DYNATRON CORPORATION

TOP MOTOR TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 6.3. TUV Certificate

Zertifikat

Certificate



Zertifikat Nr. Certificate No. R 50064443  
Blatt Page 0002

Ihr Zeichen Client Reference PC/DTI  
Unser Zeichen Our Reference ZTW1-TCC- 10013649 002  
Ausstellungsdatum Date of Issue 11.11.2005 (day/mo/yr)

Genehmigungsinhaber License Holder Dynaeon Industrial Co., Ltd.  
1st Fl., No. 362, Tanan Rd.  
Taipei 111  
Taiwan, R.O.C.  
Fertigungsstätte Manufacturing Plant Dynaeon Ind. Co., Ltd.  
Ta-Li Management Zone  
Ching-Hsi, Dongguan  
P.R. China

Prüfzeichen Test Mark Bauart Geprüft nach Tested acc. to  
EN 60950-1:2001+A11



Zertifiziertes Produkt (Geräteidentifikation) Ventilator (DC Fan)  
Certified Product (Product Identification) wie Blatt (as page) 01  
Lizenzentgelte - Einheit License Fee - Unit

Ergänzung (Addition)

Bezeichnung : DF(X1)(X2)(X3)(X4)(X5)ZZZZ-(X6)  
(Type Designation)  
(X1) steht für (stands for) : 05, 12, 24  
(X2) steht für (stands for) : 40, 50, 60, 70, 80  
(X3) steht für (stands for) : 10, 15, 20  
(X4) steht für (stands for) : S, B, P, Q  
(X5) steht für (stands for) : U, H, M, L, E  
Z steht für (stands for) : A-Z, 0-9 oder freibleibend (or blank)  
(X6) steht für (stands for) : A, B  
Nennspannung : DC 5V (X1 = 05); DC 12V (X1 = 12)  
(Rated Voltage) DC 24V (X1 = 24)  
Nennstrom : siehe Aufbau-Übersicht  
(Rated Current) (see constructional dataform)



ANLAGE (Appendix): 1.1

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.

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln

Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Althoff@de.tuv.com

Zertifizierungsstelle

F. Stöckel  
Dipl.-Ing. F. Stöckel



# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 6.4. UL Certificate



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.

**Electric fans**, Models DC0504, -1204, -1205, -1206, DF1204, -1208, -2408, -0504, -0505, -1205, -2406 followed by "S" or



# DYNATRON CORPORATION

## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

"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.



Marking: Company name or trademark **TOP MOTOR**, model designation and Recognized Component Mark for Canada,



Last Updated on 2008-02-18

---

[Questions?](#)

[Notice of Disclaimer](#)

[Page Top](#)

[Copyright © 2009 Underwriters Laboratories Inc.®](#)

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2009 Underwriters Laboratories Inc.®"

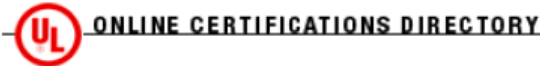
*An independent organization working for a safer world with integrity, precision and knowledge.*





# DYNATRON CORPORATION

## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD



**GPWV8.E157868**

**Fans, Electric Certified for Canada - Component**

[Page Bottom](#)

**Fans, Electric Certified for Canada - Component**

[See General Information for Fans, Electric Certified for Canada - 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.

**Electric fans**, Models DC0504, -1204, -1205, -1206, DF0504, -0505, -1204, -1205, -1208, -2406, -2408 followed by "S" or



# DYNATRON CORPORATION

## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

"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.



Marking: Company name or trademark **TOP MOTOR**, model designation and Recognized Component Mark for Canada,



Last Updated on 2008-02-18

---

[Questions?](#)

[Notice of Disclaimer](#)

[Page Top](#)

[Copyright © 2009 Underwriters Laboratories Inc.®](#)

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2009 Underwriters Laboratories Inc.®"

*An independent organization working for a safer world with integrity, precision and knowledge.*





# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 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.



# DYNATRON CORPORATION

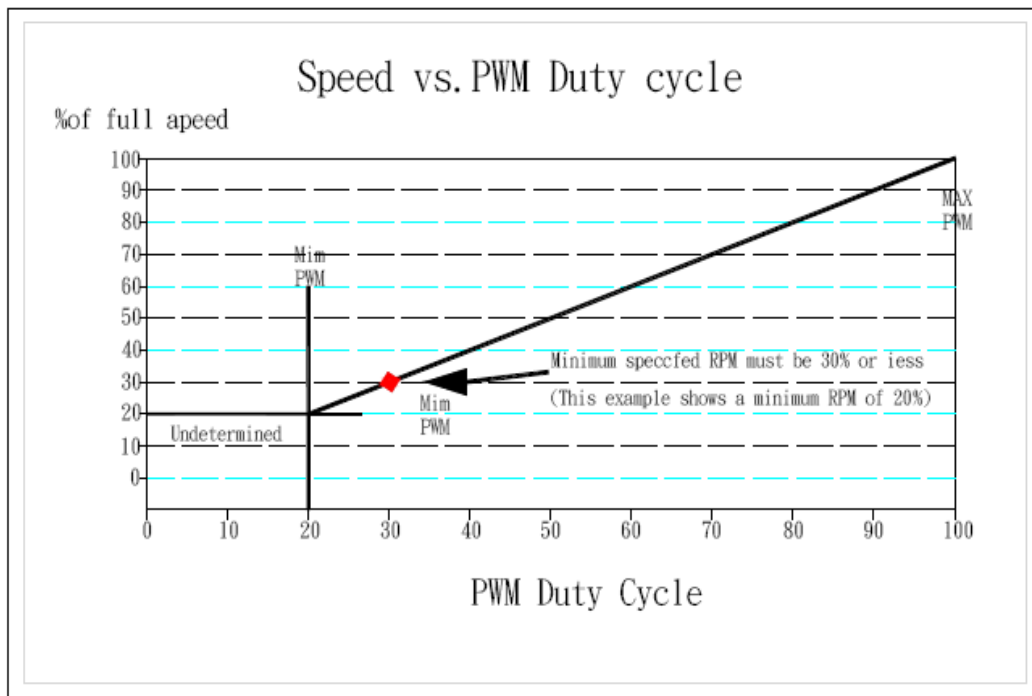
## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

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 PRM, as a percentage of maximum.

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