



A19

3U Active Air Cooler

PRODUCT SPECIFICATIONS

Rev 1.0_ Oct. 03, 2022

Table of Contents

1. REVISION HISTORY	3
2. PRODUCT DESCRIPTION	4
3. THERMAL PERFORMANCE CURVE.....	5
4. EP DRAWING	6
5. DM DRAWING	7
6. COOLING FAN SPECIFICATION	8 -22
7. RoHS CERTIFICATE	23

Document History List

REV_0.0	INITIAL RELEASE	May 15, 2017
REV_1.0	1. UPDATE DESCRIPTION ON SUPPORTING CPU 170W TDP, PAGE 4 2. REMOVE BACKPLATE	OCT. 03, 2022

Model Number: A19

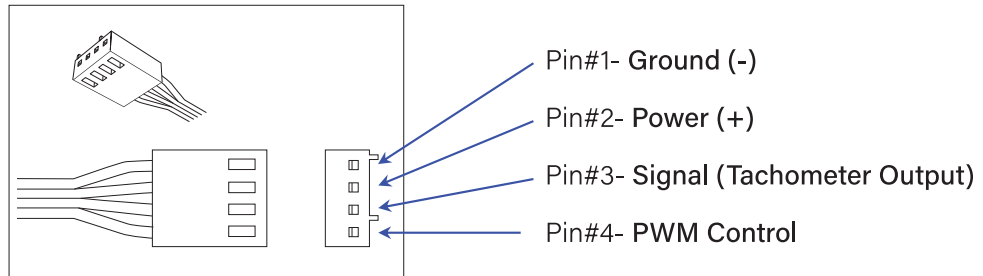
- AMD® Ryzen Processor, Socket AM4 / AM5
- Active Cooler for 3U Server

Overall Specification

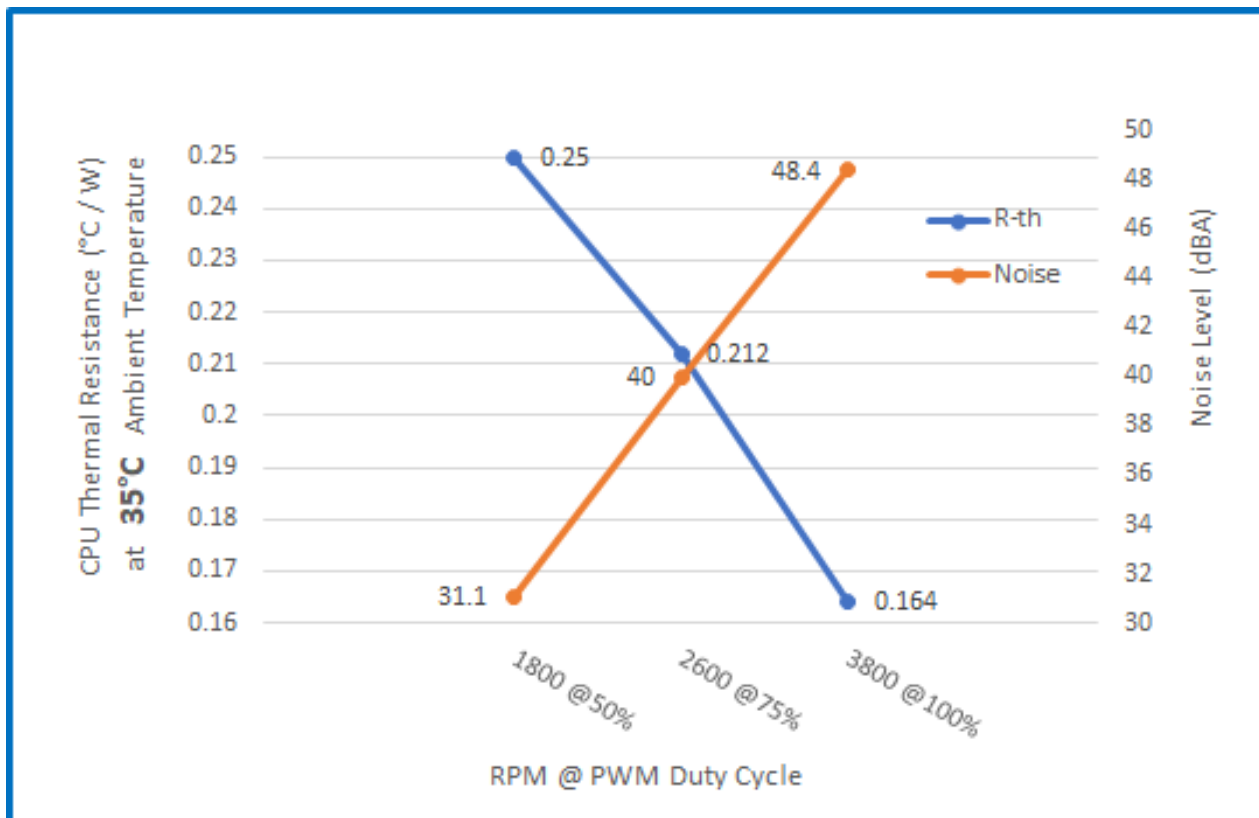
Dimension	107.5 x 78 x 110 mm
Weight	600 g
Material	Aluminum Stacked Fin with Heat Pipes directly contact CPU
Fan	8038 Side-Blow Fan with PWM Function
Mounting Method	Convenient Heat Sink Screw Captive Mounting
Thermal Grease	Shin-Etsu 7762 pre-printed
TDP	Support CPU Power 170 Watts Heat Dissipation

Fan Specification

Model Number	DF128038BL - PWMG
Dimension	80 x 80 x 38 mm
Bearing	Double Ball
Rated Voltage	12V
Rated Speed	At Duty Cycle 0~20%: 1000 ± 10% RPM At Duty Cycle 50%: 2000 ± 10% RPM At Duty Cycle 100%: 3800 RPM Min.
Input Power	At Duty Cycle 0~20%: 2.2 W At Duty Cycle 50%: 3.6 W At Duty Cycle 100%: 7.9 W
Maximum Airflow	At Duty Cycle 0~20%: 13.8 CFM At Duty Cycle 50%: 30.78 CFM At Duty Cycle 100%: 65.4 CFM
Rated Static Pressure	At Duty Cycle 0~20%: 0.420 mm-H2O At Duty Cycle 50%: 2.450 mm-H2O At Duty Cycle 100%: 9.750 mm-H2O
Acoustical Noise	At Duty Cycle 0~20%: 16.0 dBA At Duty Cycle 50%: 31.5 dBA At Duty Cycle 100%: 43.4 dBA
Lead Wire Pin Out	Pin#1- Black(-) Pin#2- Yellow(+) Pin#3- Green(Tachometer/ Signal Output) Pin#4- Blue (PWM)

A19 | Socket AM4 / AM5
Lead Wire Pin Out Diagram :


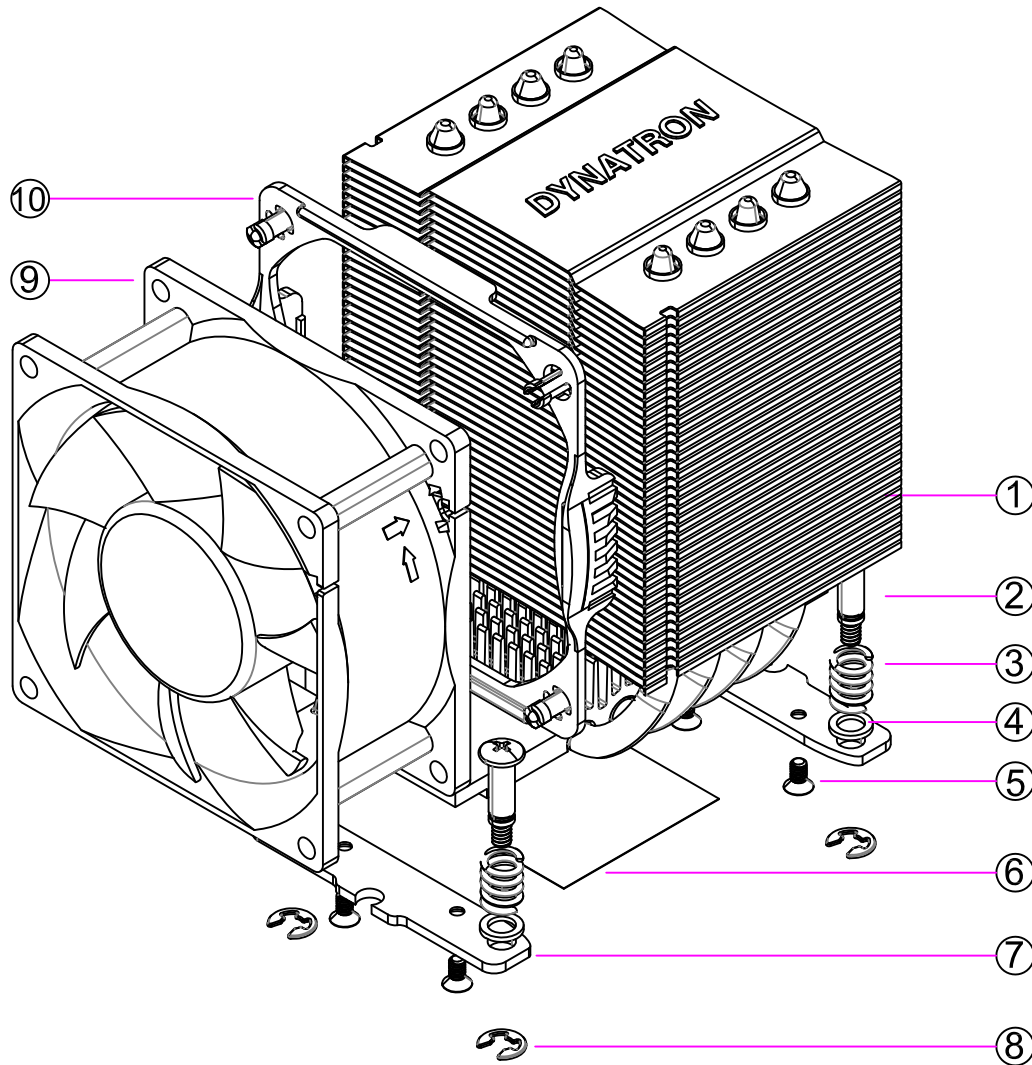
Performance Chart: Active Cooler A19 Cooling Performance Thermal Resistance VS. Fan Speed @ PWM duty cycle



CONFIDENTIAL DOCUMENT

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ASSEMBLY PARTS

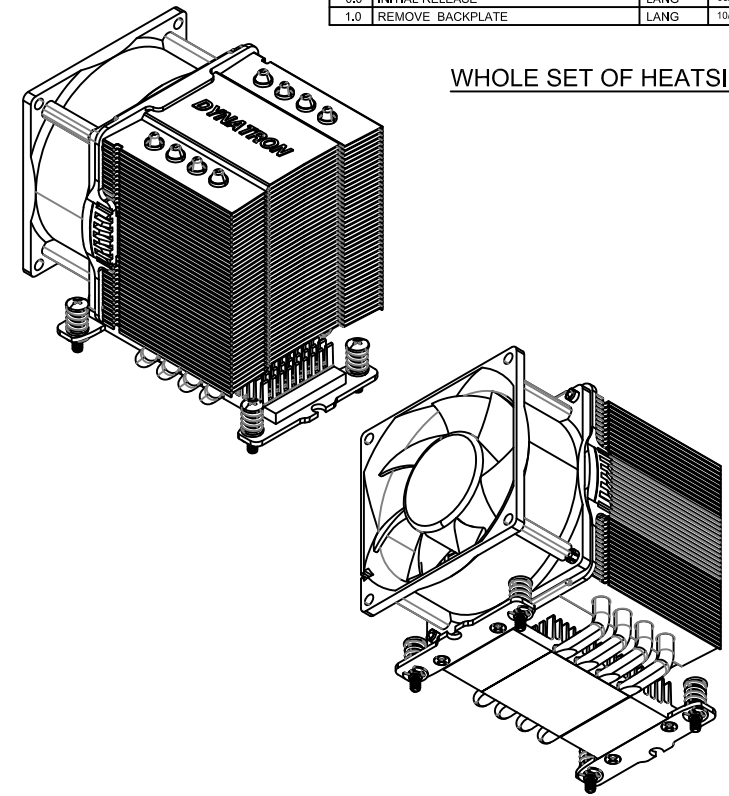


NOTES:


1. THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE
2. OVERALL DIMENSION : 107.5 x 64 x 110 mm
3. OVERALL WEIGHT ESTIMATED : 600 g

REV#	DESCRIPTION	CHECKER	DATE
0.0	INITIAL RELEASE	LANG	05/15/2017
1.0	REMOVE BACKPLATE	LANG	10/03/2022

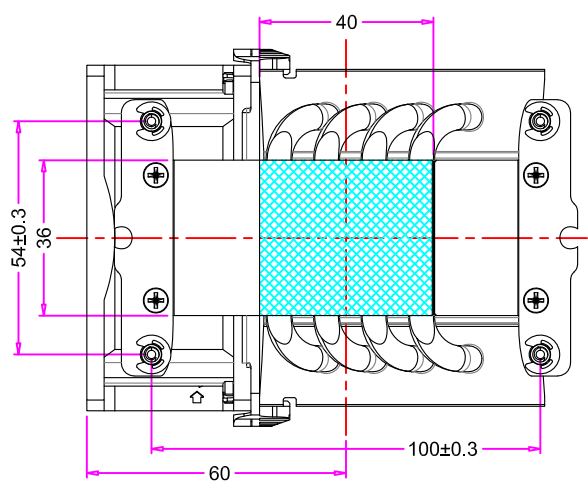
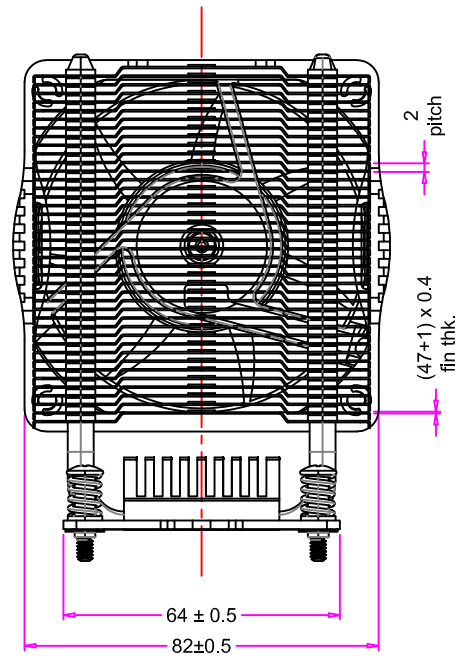
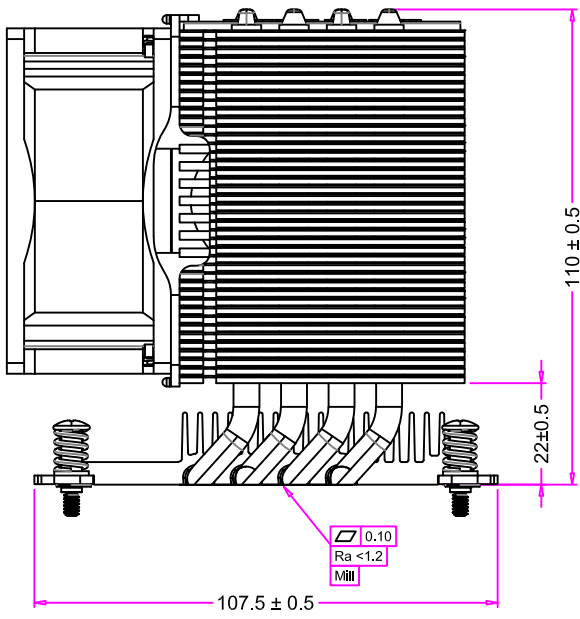
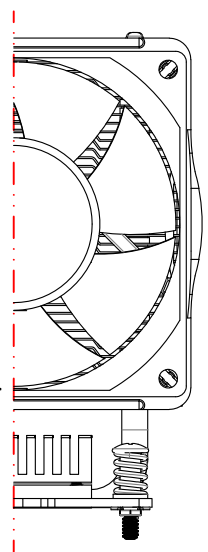
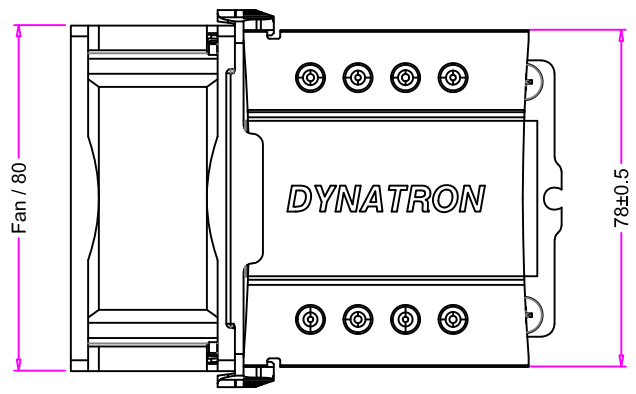
WHOLE SET OF HEATSINK



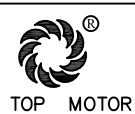
10	Fan Mounting Bracket	Plastic	1
9	Fan, DF128038BE-PWMG,3500RPM	PC, Semi-Transparent	1
8	C-Ring	Steel	4
7	Heatsink Bracket	SK7	2
6	Thermal Grease, Pre-printed	Shin-Etsu 7762	1
5	Screw, Bracket	Steel	4
4	Washer	Steel	4
3	Spring (0910)	SUS 304	4
2	Screw, Heatsink Mounting, #6-32	Steel	4
1	Heat Sink	AL.Fin + Heatpipes Aluminum Base	1

ITEM#	DESCRIPTION		MATERIAL	QTY.
	DATE	NAME	 DYNATRON CORPORATION	
	10/03/2022	Engr		
	CHECKED	LANG	TITLE: 3U Active Cooler A19 BOM & Exploded Assembly Drawing	
	ENG. APPR.			
	MFG. APPR.			
	G.A.			
	COMMENTS:		DWG. No:	REV
			DYN-EP-A19	1.0

REV#	DESCRIPTION	CHECKER	DATE
0,0	INITIAL RELEASE	LANG	05/15/2017
1,0	REMOVE BACKPLATE	LANG	10/03/2022



	NAME	DATE
DRAWN BY	engr	10/03/2022
CHECKED BY	LANG	10/03/2022
ENG.APPROVED		
MFG.APPROVED	-	-



DYNATRON CORPORATION

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TITLE: **3U Active Cooler A19**
BOM & Overall Dimension Drawing

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VIEW		DWG. No:	
UNITS	MM		

DWG. No: **DYN-BD-A19**

REV. **1.0**



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

Specification for Approval

Customer:		
Model Number:	DF128038BL - PWM	
Part Number:		
Issued Date:	Tuesday, August 13, 2013	
Customer Approval		
Approval:	Check:	
Corporate Headquarters Dynatron Corporation 42307 Osgood Road, #F, Fremont, California 94539, U.S.A. Tel: 510-498-8888 Fax: 510-498-8488	Manufactory TOP MOTOR TECHNOLOGY(HUIZHOU)CO,LTD Baishi Village, QiuchangTown, Huiyang Dist, HuizhouCity, Guangdong Province, P.R.China Tel: 86-752-353-5591 (Rep.) Fax: 86-752-353-5592	
Los Angeles Office (U.S.A.) 337 Paseo Sonrisa, Walnut, California 91789 U.S.A. Tel: 909-598-2222 Fax: 909-598-8158	Taipei Office (Taiwan, R.O.C.) 8F, No. 35, Lane:221, Gang Cian Road, Taipei, Taiwan, R.O.C. Tel: 886-2-2799-5799(Rep.) Fax: 886-2-2799-9577	
Approval:	Check:	Handler:
Simon Wang		Jandy Chan



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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	5
	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



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1. SCOPE

This specification defines the electrical and mechanical characteristics of the AC / DC Brush less(Liquid State Bearing / 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 0-20%	Duty Cycle 50%	Duty Cycle 100%
4.	Start Voltage	7V		
5.	Air Flow – At rated voltage zero static pressure (minimal value)	0.388m ³ / min (13.68CFM)	0.872m ³ / min (30.78CFM)	1.938m ³ / min (68.40CFM)
6.	Static Pressure – At rated voltage At zero air flow	0.404mm-H ₂ O (0.016inch-H ₂ O)	2.045mm-H ₂ O (0.081inch-H ₂ O)	10.10mm-H ₂ O (0.398inch-H ₂ O)
7.	Input Current (Max.)	0.18A	0.3A	0.68A
8.	Speed (Max.)	800RPM ±10%	1800RPM ±10%	3800RPM ±10%
9.	Acoustical Noise	16.0dBA	31.06dBA	48.4dBA
10.	Input Power	2.16W	3.6W	8.16W
11.	Auto restart time	3-5 sec		
12.	Insulation Resistance – Between Frame and Terminal	10 M ohm at DC 500 V		
13.	Dielectric Strength – Between Frame and Terminal	5 mA (Max.) @ AC 500 V 60 Hz 1 min.		
14.	Life – Continuous operating under normal temperature (40 °C or 104 °F)	70,000 hours		
15.	Rotation	Clockwise Air Discharged		
16.	Lead Wires	UL 1007, awg 26 or Equivalent “-”: Black; “+”: Yellow; “s”: Green. “PWM”: Blue		



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3. MECHANICAL CHARACTERISTICS

Items		Description
1.	Dimension	Display as Drawing
2.	Frame	PC (Gray)
3.	Impeller	PC (Gray)
4.	Bearing System	Two ball Bearing
5.	Weight	90 ± 10 grams

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	48.4dBAurve (Max48.9dBA) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

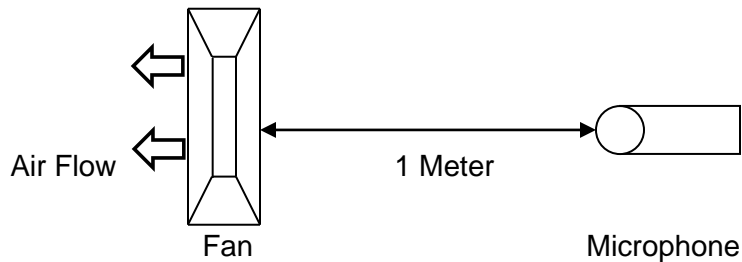


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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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.
2.	Locked Rotor Protection	Motor winding protects the motor from damage in 72 hours of locked rotor condition at rated voltage.

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

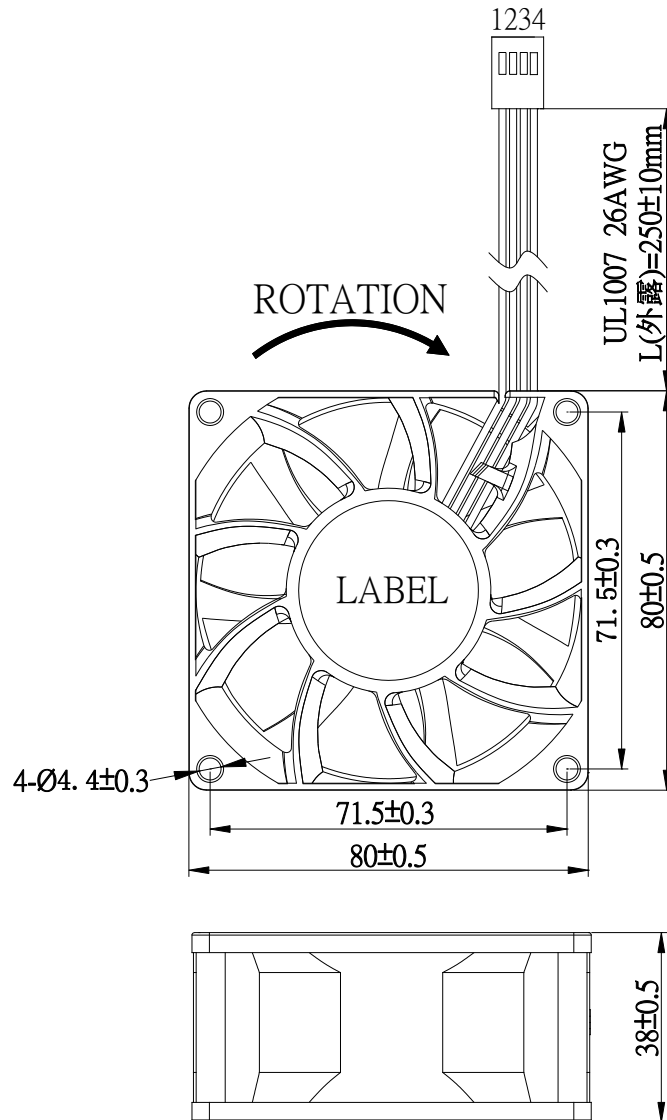


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6.1. Product Dimension

DIMENSION:



Note:

- Lead Wire: 1007#26AWG 80°C 300V UL,CSA APPROVAL
PIN 1: Black Wire ----- Ground
PIN 2: Yeller Wire ----- Power
PIN 3: Green Wire ----- Signal
PIN 4: Blue Wire ----- PWM
- Connector: 2.54-4PIN or Equivalent



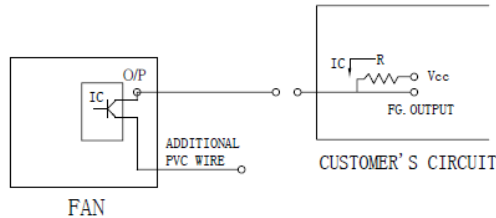
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6.2. Frequency Generator Output

FREQUENCY GENERATOR O/P:

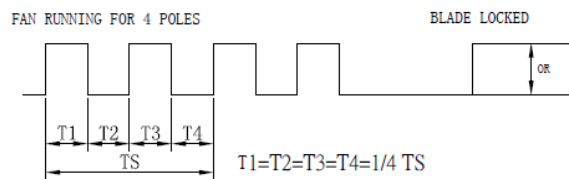
Frequency generator function is activated by an internal IC for customer's application.
Electrical schematic:



CUSTOMER'S CIRCUIT

V_{cc} = From +5 To +28 VDC (Generally using +12 or +24 VDC)
 I_c = 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

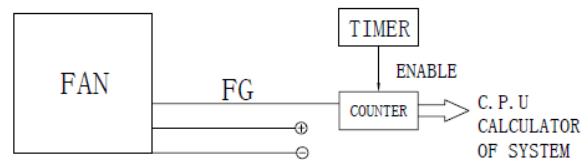
• OUTPUT LEVEL:

High = V_{cc} 10%

Low = 0~0.5V

I_c = 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



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Zertifikat

Certificate



Zertifikat Nr. *Certificate No.*
R 50064443

Blatt *Page*
0011

Ihr Zeichen <i>Client Reference</i>	Unser Zeichen <i>Our Reference</i>	Ausstellungsdatum	<i>Date of Issue</i> (day/mo/yr)
8547300070/EMTEK	ZTW1-CCO- 10013649 008	18.01.2008	

Genehmigungsinhaber *License Holder*
Dynaeon Industrial Co., Ltd.
8F, No. 35, 37, Lane 221
Gang Cian Rd.
Neihu, Taipei 114
Taiwan

Fertigungsstätte *Manufacturing Plant*
Dynaeon Ind. Co., Ltd.
Ta-Li Management Zone
Ching-Hsi, Dongguan
P.R. China

Prüfzeichen *Test Mark*



Geprüft nach *Tested acc. to*
EN 60950-1:2001+A11

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Ventilator (DC Fan)

wie Blatt (as page) 01
Ergänzung für Bezeichnung : DB127015 (X4) (X5) ZZZZZ-A
(Addition for Type Designation)
Bezeichnung : DB (X1) (X2) (X3) (X4) (X5) - ZZZZZ - (X6)
(Type Designation)
(X1) steht für (stands for) : 12
(X2) steht für (stands for) : 80, 12
(X3) steht für (stands for) : 15, 25
(X4) steht für (stands for) : S, B, P, Q
(X5) steht für (stands for) : U, H, M, L, E
E steht für : A-Z, 0-9 oder (or)
(stands for) freibleibend (blank)
(X6) steht für (stands for) : A
Nennspannung : DC 12V
(Rated Voltage)
Nennstrom : siehe Anlage
(Rated Current) (see appendix)



1
1
1
1
1
1
1
1
1
8

ANLAGE (Appendix) : 1

Das 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.

Zertifizierungsstelle

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
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

Dipl.-Ing. F. Staelzel



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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



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"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  and model designation.

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DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD



ONLINE CERTIFICATIONS DIRECTORY

GPWV8.E157868

Fans, Electric Certified for Canada - Component

[Page Bottom](#)

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.

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



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"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,



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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

1.1 Maximum 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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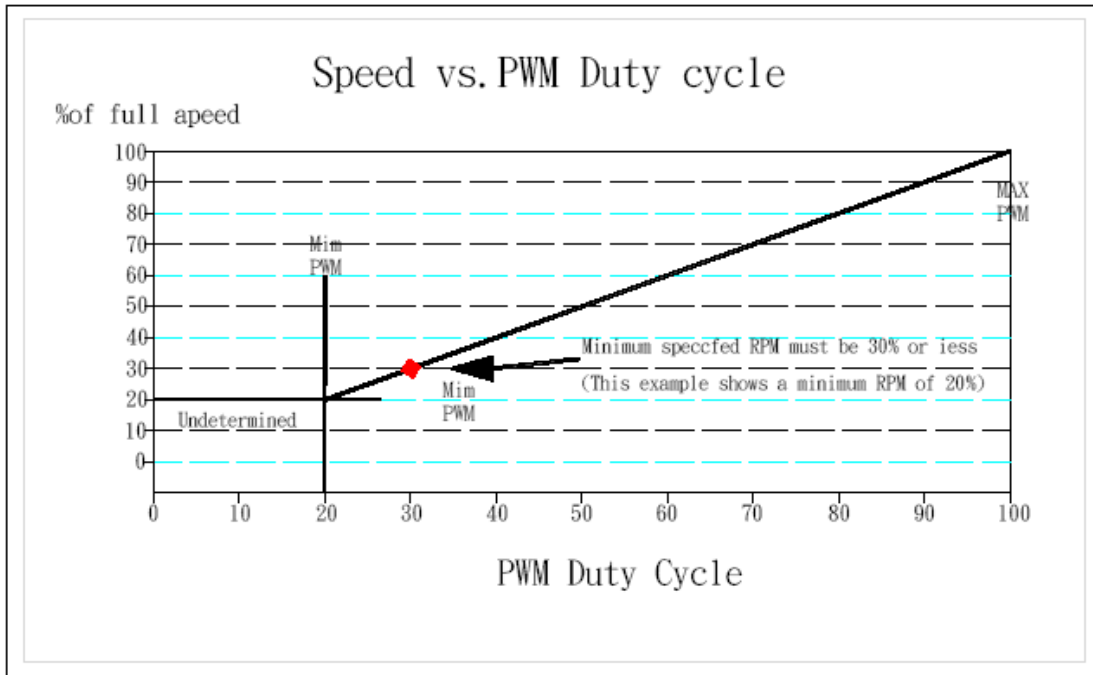
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USA Dynatron Corp.

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 PRM, as a percentage of maximum.

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



Certificate of Environment Protection

環保證明書

Document Number: RH-A19-R0

Customer: 客戶名稱:	Company: _____ Address: _____ Phone Number: ____ - ____ - _____
Issue Date:	05/19/2017
Product Model Number:	A19
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