



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO.,LTD

Specification for Approval

Customer:		
Model Number:	CA23	
Part Number:	/	
Issued Date:	Friday, June 26, 2026	
Version:	A	
Customer Approval		
Approval:	Check:	
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Approval:	Check:	Handler:
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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 = 20%	Duty Cycle D = 50%	Duty Cycle D = 100%
4.	Start Voltage	8V		
5.	Air Flow – At rated voltage zero static pressure (minimal value)	0.92m ³ / min (35.52CFM)	1.92m ³ / min (67.92CFM)	3.68m ³ / min (130.06CFM)
6.	Static Pressure – At rated voltage At zero air flow	2.69mm -H ₂ O (0.11inch-H ₂ O)	11.77mm -H ₂ O (0.46inch-H ₂ O)	43.11mm-H ₂ O (1.70inch-H ₂ O)
7.	Input Current (Max.)	0.12A	0.50A	3.20A
8.	Speed	2250RPM±10%	4700RPM±10%	9000RPM±10%
9.	Acoustical Noise	36.86dBA	52.85dBA	66.96dBA
10.	Input Power	1.44W	6.0W	38.4W
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 (25 °C or 77 °F)	70,000 hours		
14.	Rotation	Anticlockwise Air Discharged		
15.	Lead Wires	UL 1007,AWG 22 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 (Coffee Colour GP)
3.	Impeller	PBT UL94V-0 (Milk Coffee GP)
4.	Bearing System	Two ball Bearing
5.	Weight	/

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	36.86/52.85/66.96dBA - Curve (37.36/53.35/67.46Max) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

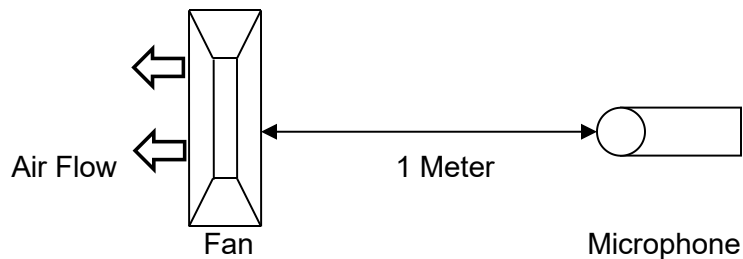


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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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

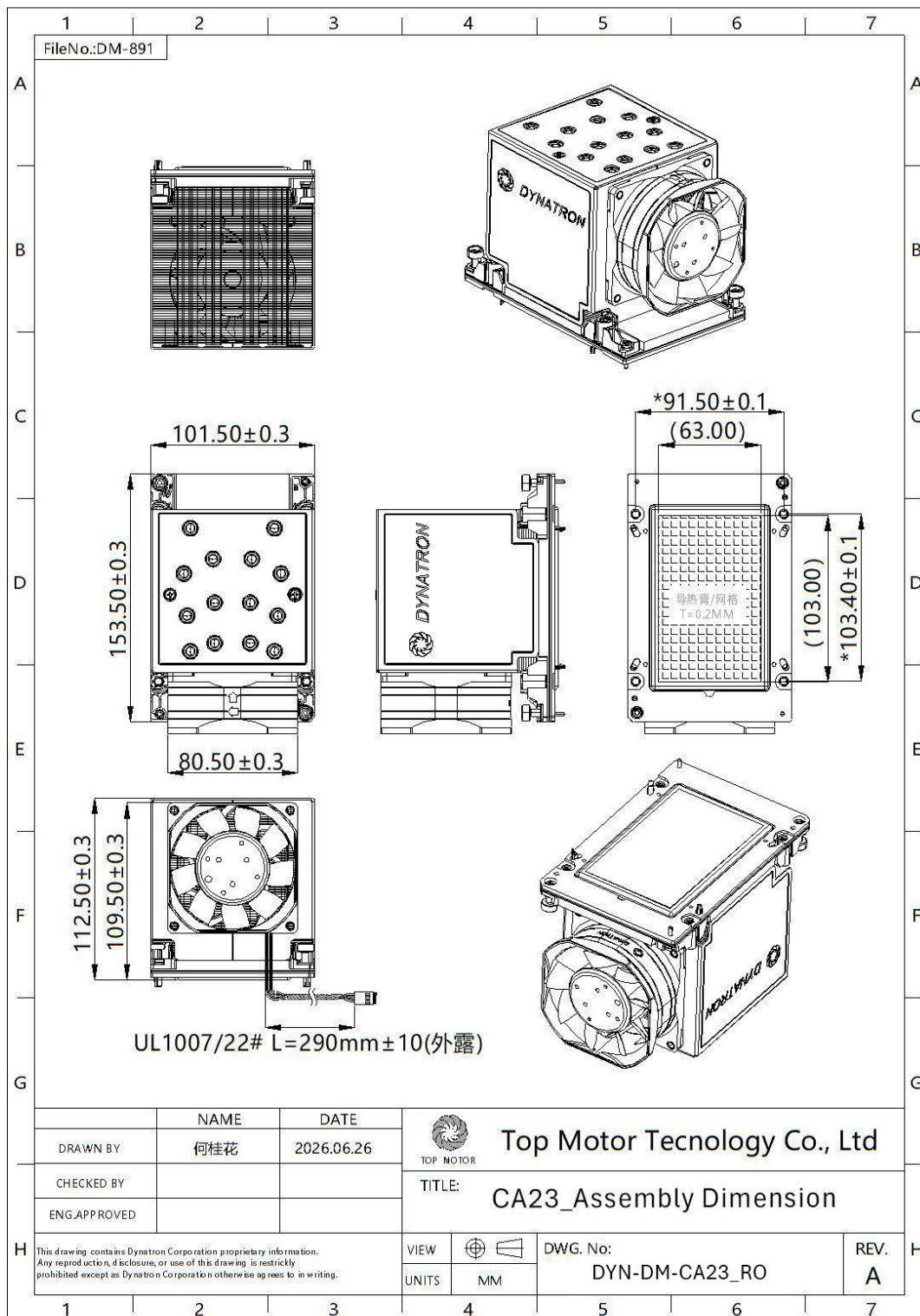
- 6.1. Product Dimension
- 6.2. Frequency Generator Output
- 6.3. TUV Certificate
- 6.4. UL Certificate
- 6.5. Electrical specifications for pwm production



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6.1.Product Dimension





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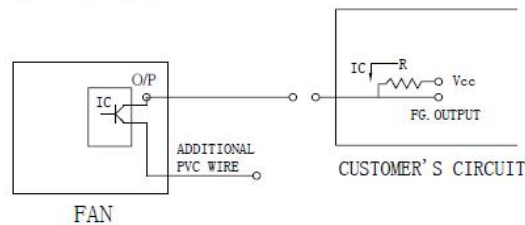
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6.2 Frequency Generator Output

FREQUENCY GENERATOR O/P:

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

Electrical schematic:



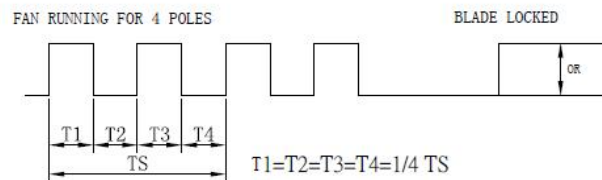
CUSTOMER'S CIRCUIT

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

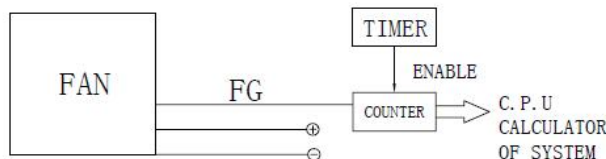
• OUTPUT LEVEL:

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

Zertifikat Certificate			
Zertifikat Nr. Certificate No. R 50064443	Blatt Page 0021		
Ihr Zeichen Client Reference P00532180	Unser Zeichen Our Reference ZTW1-- 10013649 016	Ausstellungsdatum 18.01.2022	Date of Issue (day/mo/yr)
Genehmigungsinhaber License Holder Dynaen Industrial Co., Ltd. 8F, No. 35, 37, Lane 221 Gang Cian Rd. Neihu, Taipei 114 Taiwan, R.O.C.		Fertigungsstätte Manufacturing Plant Top Motor Technology (Huizhou) Co., Ltd. Baishi Village, Qiuchang Town, Huiyang District Huizhou City Guangdong P.R. China	
Prüfzeichen Test Mark 		Geprüft nach Tested acc. to EN 62368-1:2014	
Zertifiziertes Produkt (Geräteidentifikation) Certified Product (Product Identification) Ventilator (DC Fan)		Lizenzentgelte - Einheit License Fee - Unit	
wie Blatt (as page) 01, Ergänzung (Addition) Bezeichnung (Type Designation): 1) DF124028 (X4) (Y) - (E), 2) DF126025 (X4) (Y) - (E) 3) DF126028 (X4) (Y) - (E), 4) DF127720 (X4) (Y) - (E) 5) DF128038 (X4) (Y) - (E), 6) DF129225 (X4) (Y) - (E) 7) DB127015 (X4) (Y) - (E), 8) DB127515 (X4) (Y) - (E) 9) DB128013 (X4) (Y) - (Z) - (E), 10) DB128015 (X4) (Y) - (E) (TOP MOTOR) (X) steht für : S, B, P, Q (stands for) (Y) steht für : H, M, U, L, S, X (stands for) (Z) steht für : A-Z, 0-9 oder (or) (stands for) freibleibend (blank) (E) steht für : A-Z, 0-9 oder (or) (stands for) freibleibend (blank) Nennspannung : DC 12V (Rated Voltage) Nennstrom : siehe Anlage (Rated Current) (see appendix) ANLAGE (Appendix): 1.2 Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht. This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.			
TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg 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		Zertifizierungsstelle  Dipl.-Ing. (FH) A. Klinker	



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TOP MOTOR TECHNOLOGY (HUIZHOU) CO., LTD

6.4. UL Certificate

CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2208619-1
Report Reference E157868-20220222
Date 19-Mar-2022

Issued to: DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST TAIPEI 114
Taiwan

This is to certify that
representative samples of

GPWV2 - Fans, Electric - Component
See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the
component requirements in the Standard(s) indicated on
this Certificate. UL Recognized components are incomplete
in certain constructional features or restricted in
performance capabilities and are intended for installation in
complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: UL 507, 10th Ed., Issue Date: 2017-11-09, Revision Date:
2020-05-27

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark.
Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified
and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations>.





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TOP MOTOR TECHNOLOGY (HUIZHOU) CO., LTD

CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2208619-1
Report Reference E157868-20220222
Date 19-Mar-2022

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
DB127015(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB127515(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB128013(X)(Y)-1-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB128013(X)(Y)-2-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB128015(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF124028(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF126025(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF126028(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X	Electric Fans - Component

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DF127720(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF128038(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF129225(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component

B. Mahlenz

Bruce Mahlenz, Director North American Certification Program

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Certificate Number UL-CA-2208311-1
Report Reference E157868-20220222
Date 19-Mar-2022

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8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST TAIPEI 114
Taiwan

This is to certify that
representative samples of

GPWV8 - Fans, Electric Certified for Canada - Component
See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the
component requirements in the Standard(s) indicated on
this Certificate. UL Recognized components are incomplete
in certain constructional features or restricted in
performance capabilities and are intended for installation in
complete equipment submitted for investigation to UL LLC.

Standard(s) for Safety: CSA C22.2 NO. 113-18 - 11 th Ed. - Issue Date: 2018-10-01

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This *Certificate of Compliance* does not provide authorization to apply the UL Recognized Component Mark.
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DB127015(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB127515(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB128013(X)(Y)-1-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB128013(X)(Y)-2-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DB128015(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF124028(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF126025(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF126028(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X	Electric Fans - Component

B. Mahlenz

Bruce Mahlenz, Director North American Certification Program

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, (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	
DF127720(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF128038(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component
DF129225(X)(Y)-(Z)-E, where (X) may be S, B, P, Q (Y) may U · H · M · L · E · X , (Z) may be alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.	Electric Fans - Component

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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: $V_{IL}=0.8V$
Absolute maximum current sourced: $I_{max}=5mA$ (short circuit current)
Absolute maximum voltage level: $V_{max}=5.25V$ (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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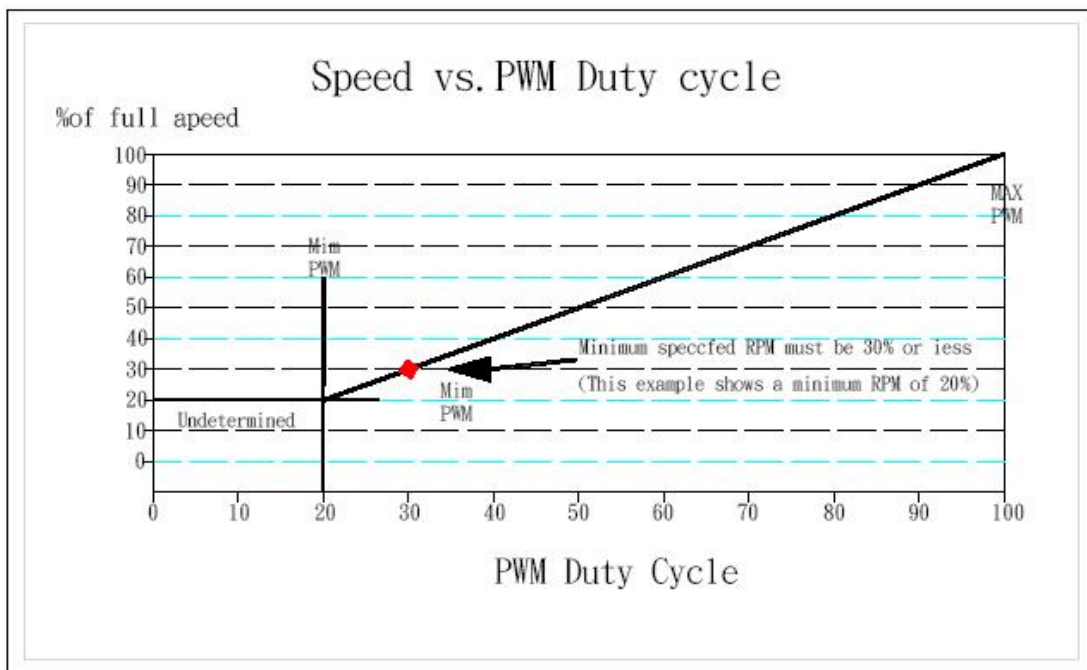
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USA Dynatron Corp.

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 RPM, as a percentage of maximum.

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