DYNATRON

The Thermal Solution Architect

WWW.DYNATRON-CORP.COM

Product Spec Sheet

L8

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DYNATRON
The Thermal Solution Architect

NEW PRODUCT SPEC SHEET

Application :

- Recommend for Intel® Xeon® Platinum / Gold Family Processor (Products formerly Skylake), Socket FCLGA3647
- **For Narrow ILM Only**
- Liquid Cooler for 1U Server

Overall Description :

- Cold Plate Module with Copper Base
- Space Saver Light Weight Radiator
- 4cm Cooling Fans with 4-Pin PWM Connector
- Stand-alone Water Pump with Powerful Flow Rate 1.7 Liter Per Minute
- 30cm Black Pair FEP Tube Assembled
- Mounting Accessories are included
- Shin-Etsu Series Thermal Compound Pre-Printed on Base
- Support CPU Overclocking Power Mode up to 230 Watts Heat Dissipation

Cooling Fan Specification:

- Model Number: DF124028BM - PWMG
- Dimension: 40mm x 40mm x 28mm
- Bearing Type: Ball, Dual
- Rated Voltage: 12V
- Rated Speed:
    - At Duty Cycle 0~20%: 2500±10% RPM
    - At Duty Cycle 50%: 6700±10% RPM
    - At Duty Cycle 100%: 12000±10% RPM

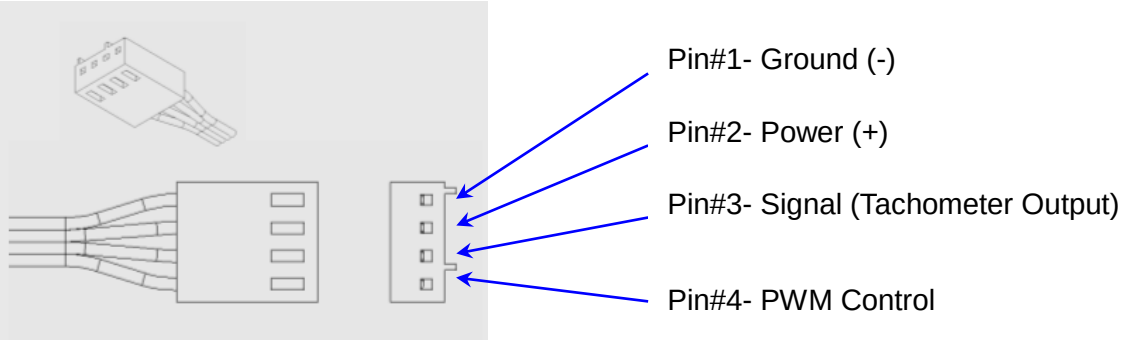
- Rated Input Power:
  - At Duty Cycle 0~20%: 1.2 W
  - At Duty Cycle 50%: 3.0 W
  - At Duty Cycle 100%: 8.4 W

- Rated Airflow:
  - At Duty Cycle 0~20%: 5.18 CFM
  - At Duty Cycle 50%: 13.87 CFM
  - At Duty Cycle 100%: 24.84 CFM

- Rated Static Pressure:
  - At Duty Cycle 0~20%: 1.39 mm-H_2O
  - At Duty Cycle 50%: 9.98 mm-H_2O
  - At Duty Cycle 100%: 32.01 mm-H_2O

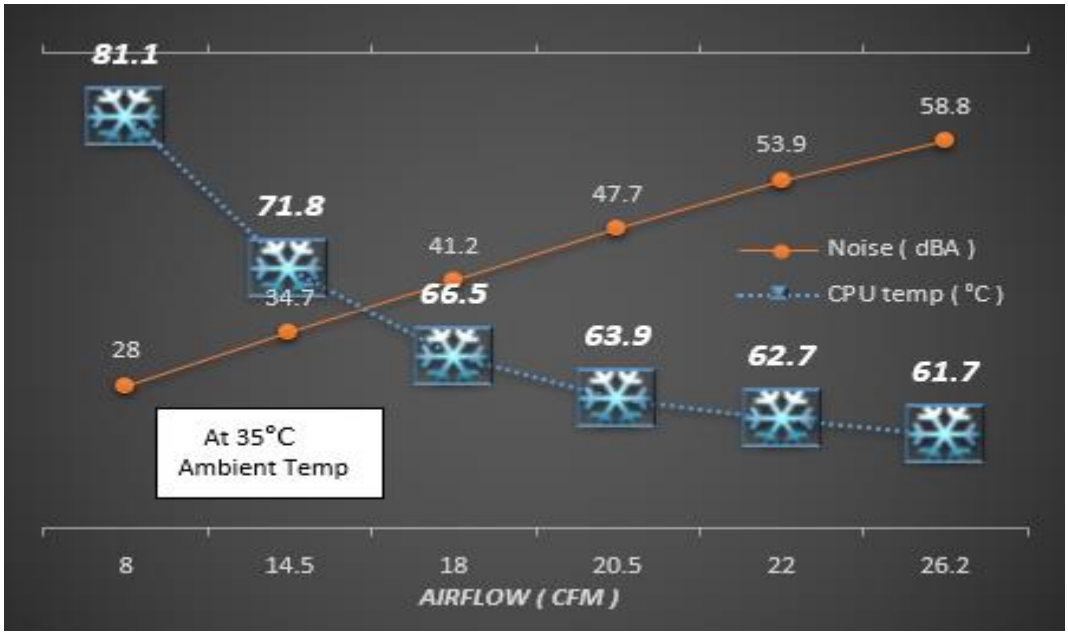
- Rated Acoustical Noise:
  - At Duty Cycle 0~20%: 18.7 dBA
  - At Duty Cycle 50%: 40.2 dBA
  - At Duty Cycle 100%: 52.8 dBA

- Lead Wire Pin Out Diagram :

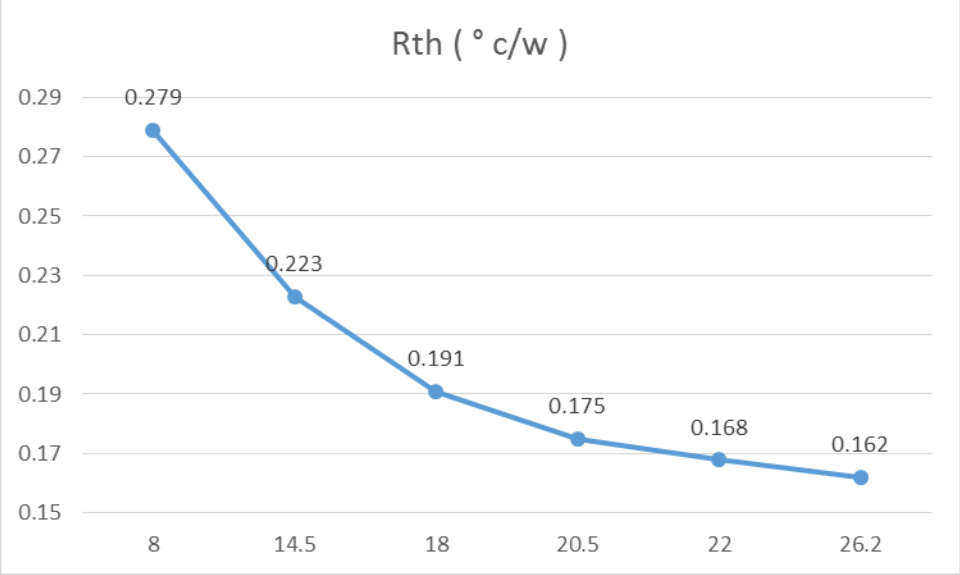


Liquid Cooler L8 Thermal Performance Curve

(Airflow VS. CPU Temperature & Noise)

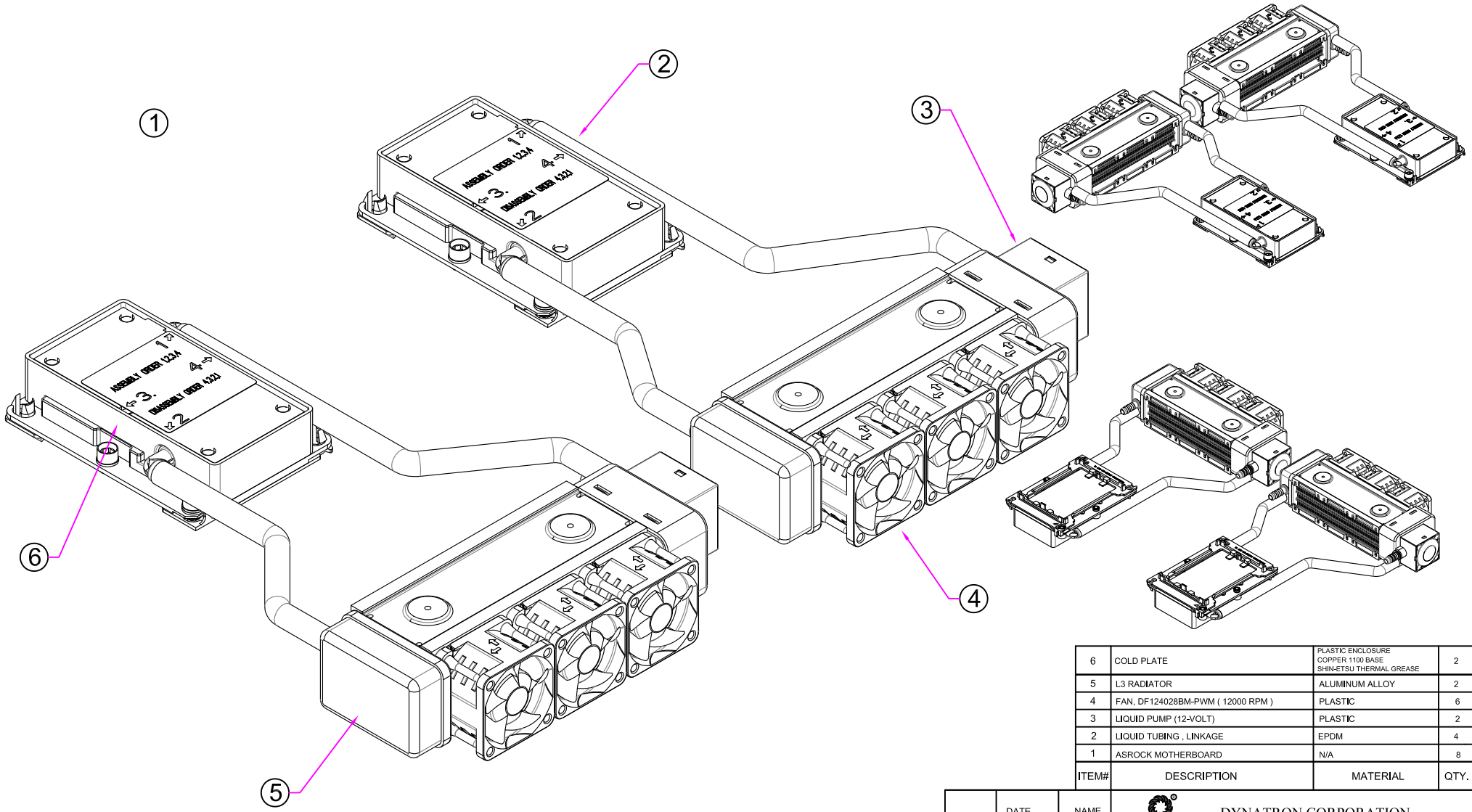


(Airflow VS. Thermal Resistance)



ASSEMBLY PARTS

REV#	DESCRIPTION	CHECKER	DATE
0.0	INITIAL RELEASE	LANG	08/30/2016
1.0	ADD SECOND COOLING MODULE	LANG	09/21/2016
2.0	RE-ARRANGE TUBING ROUTING	LANG	09/23/2016
3.0	APPLIED TO INTEL MB	LANG	10/05/2016
4.0	CHANGE TUBING ROUTING	LANG	10/10/2016



ITEM#	DESCRIPTION	MATERIAL	QTY.
6	COLD PLATE	PLASTIC ENCLOSURE COPPER 1100 BASE SHIN-ETSU THERMAL GREASE	2
5	L3 RADIATOR	ALUMINUM ALLOY	2
4	FAN, DF124028BM-PWM (12000 RPM)	PLASTIC	6
3	LIQUID PUMP (12-VOLT)	PLASTIC	2
2	LIQUID TUBING , LINKAGE	EPDM	4
1	ASROCK MOTHERBOARD	N/A	8

NOTES:

THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE

	DATE	NAME
DRAWN	10/10/2016	Engr
CHECKED	10/10/2016	LANG
ENG. APPR.		
MFG. APPR.		
Q.A.		
COMMENTS:		

TOP MOTOR

DYNATRON CORPORATION

TITLE:

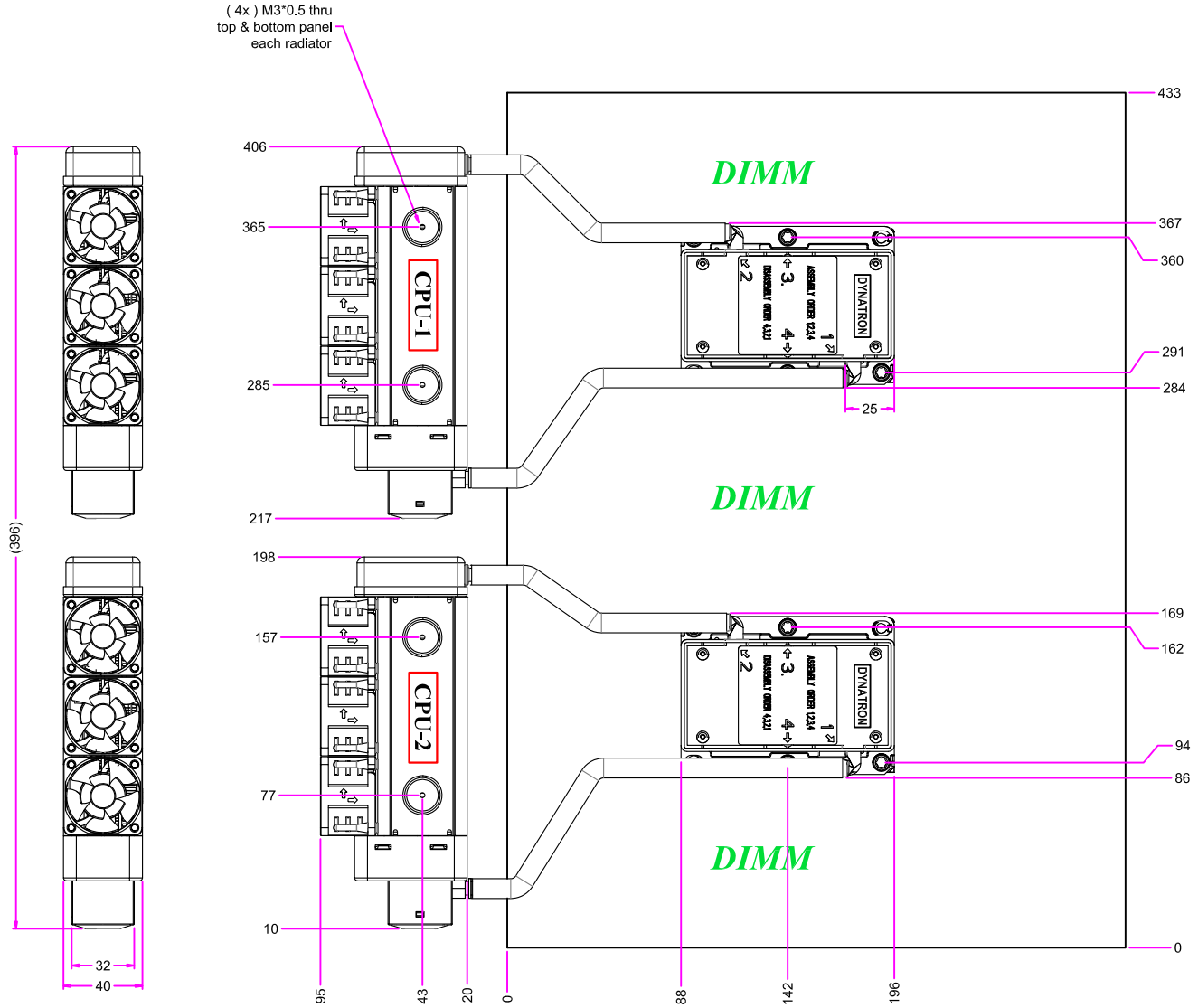
Liquid Cooler Model **L8**

BOM & Assembly Drawing

DWG. No: DYN-EP-L8

REV 4.0

REV#	DESCRIPTION	CHECKER	DATE
0.0	INITIAL RELEASE	LANG	09/21/2016
1.0	RE-ARRANGE TUBING ROUNTING	LANG	09/23/2016
2.0	APPLIED TO INTEL MB	LANG	10/05/2016
3.0	CHANGE TUBING ROUTING	LANG	10/10/2016



Customer Reference Picture

Note:
All tubes length will be confirmed upon coordinate dimension accuracy

	NAME	DATE
DRAWN BY	engr	10/10/2016
CHECKED BY	LANG	10/10/2016
ENG.APPROVED		
MFG.APPROVED	-	-

TOP MOTOR

DYNATRON CORPORATION

TITLE: Liquid Cooler Model L8
Overall Dimension Drawing

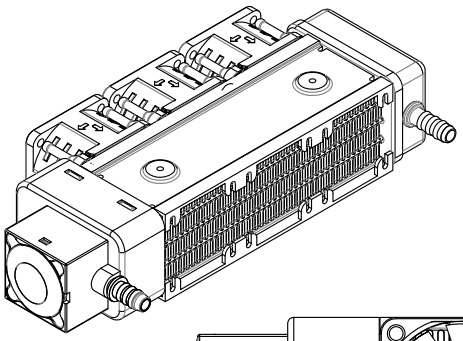
VIEW

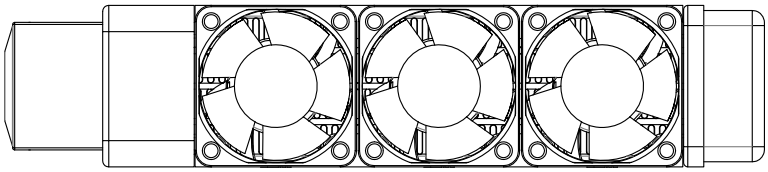
UNITS MM

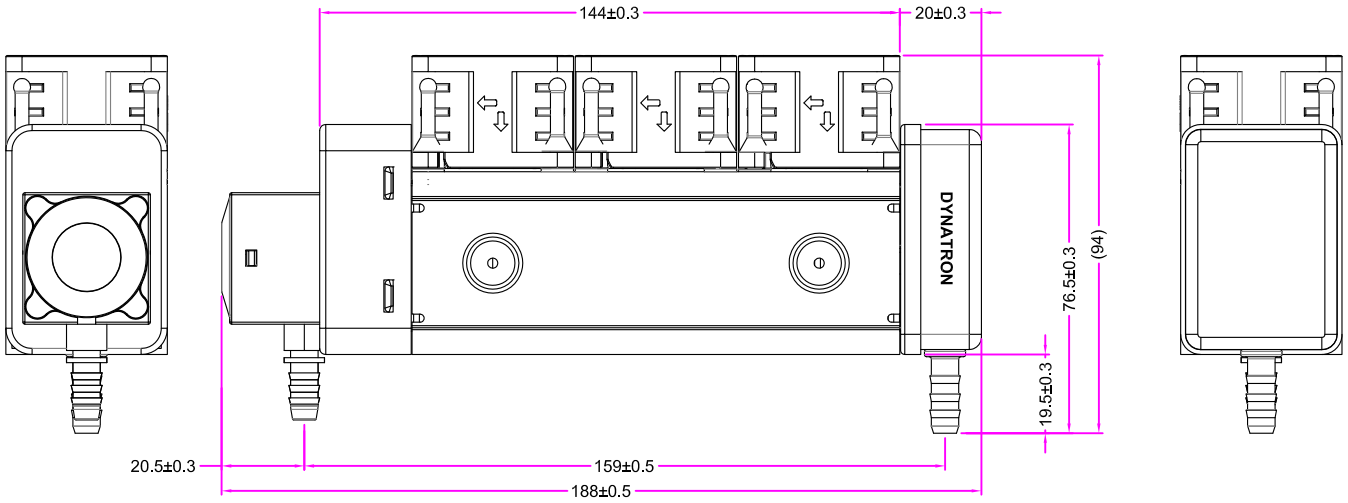
DWG. No: DYN-DM-L8

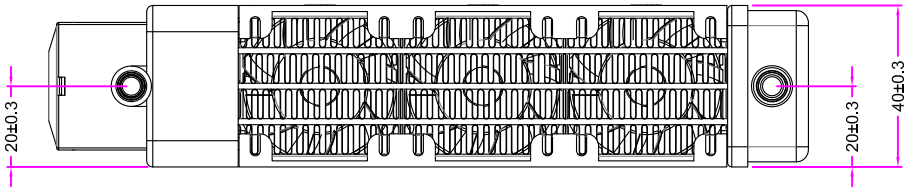
REV. 3.0

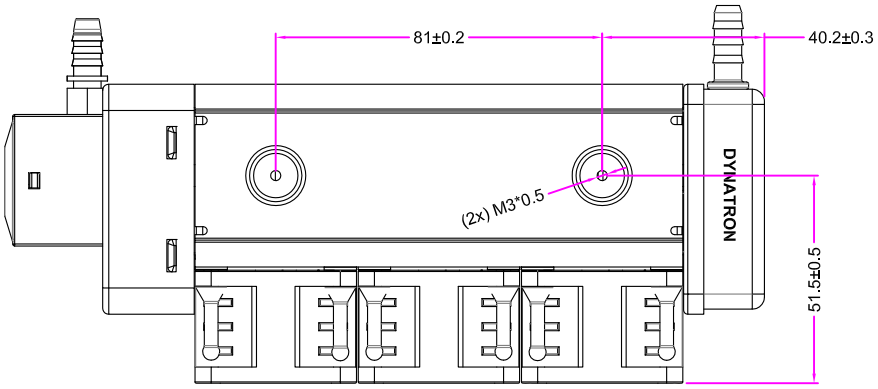
REV#	DESCRIPTION	CHECKER	DATE
0.0	INITIAL RELEASE	LANG	03/31/2015











	NAME	DATE
DRAWN BY	ENGR	08/30/16
CHECKED BY	LANG	08/30/16
ENG.APPROVED		
MFG.APPROVED	-	-

CONFIDENTIAL DOCUMENT

DYNATRON CORPORATION

TOP MOTOR

TITLE: 1U Server Liquid Cooler Condenser
Overall Dimension Drawing

VIEW		DWG. No:	REV.
UNITS	MM		0.0

REV#	DESCRIPTION	CHECKER	DATE
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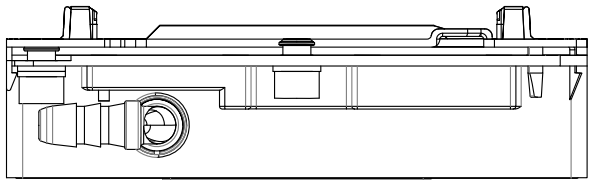
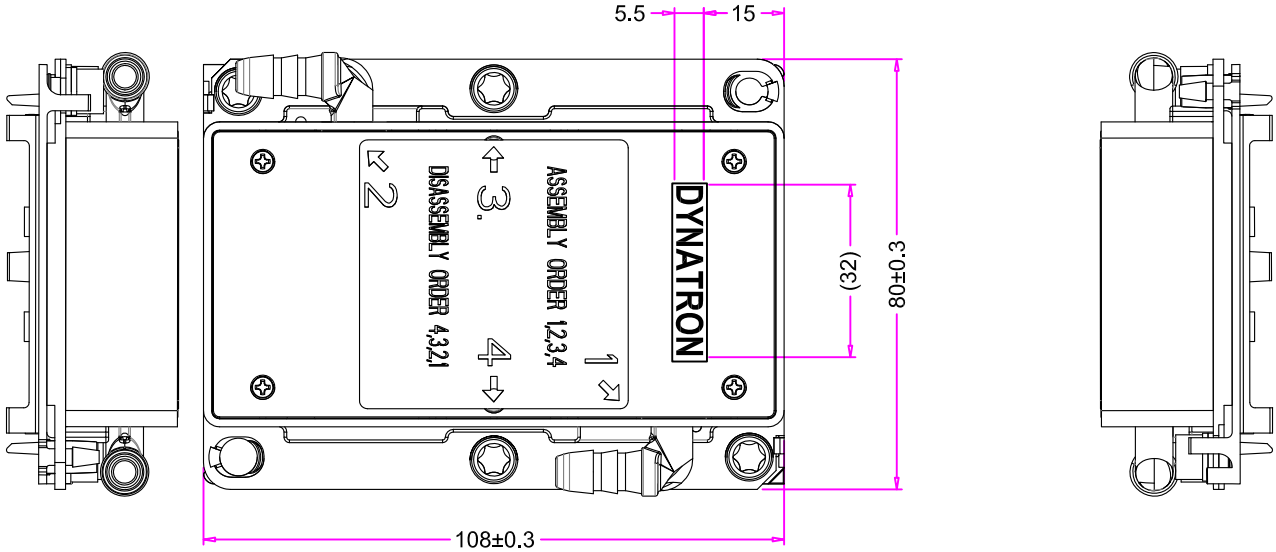
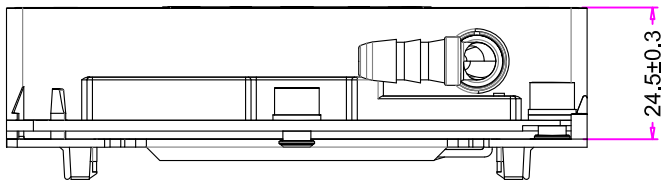
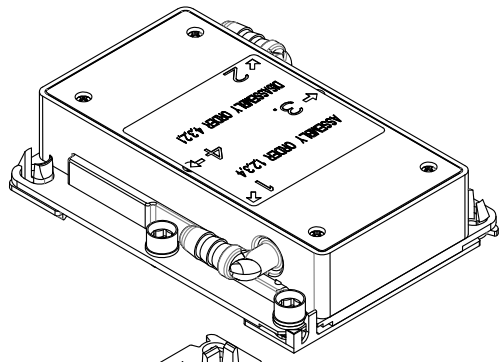
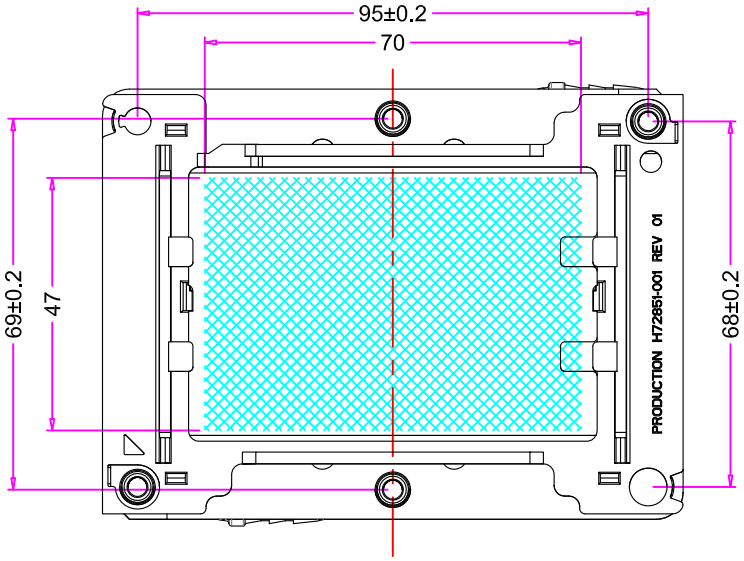
1.0	CHANGE FITTING LOCATION	LANG	10 /11 /16

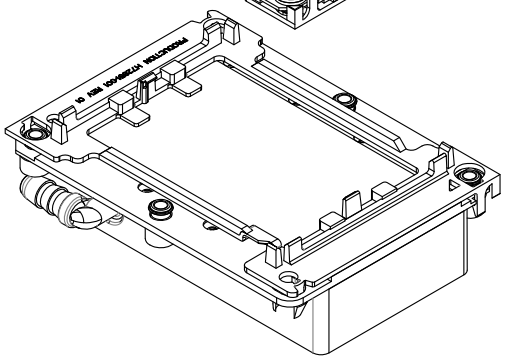












ITEM#	DESCRIPTION	MATERIAL	QTY.
5	THERMAL GREASE, PRE-APPLIED	SHIN-ETSU 7762	1
4	SCREW	STEEL	14
3	TUBING FITTING	PLASTIC	2
2	COLD PLATE ENCLOSURE	PLASTIC	1
1	COLD PLATE BASE	COPPER 1100	1

	NAME	DATE
DRAWN BY	Engr.	10/11/16
CHECKED BY	LANG	10/11/16
ENG.APPROVED		
MFG.APPROVED	-	-

DYNATRON CORPORATION

TOP MOTOR

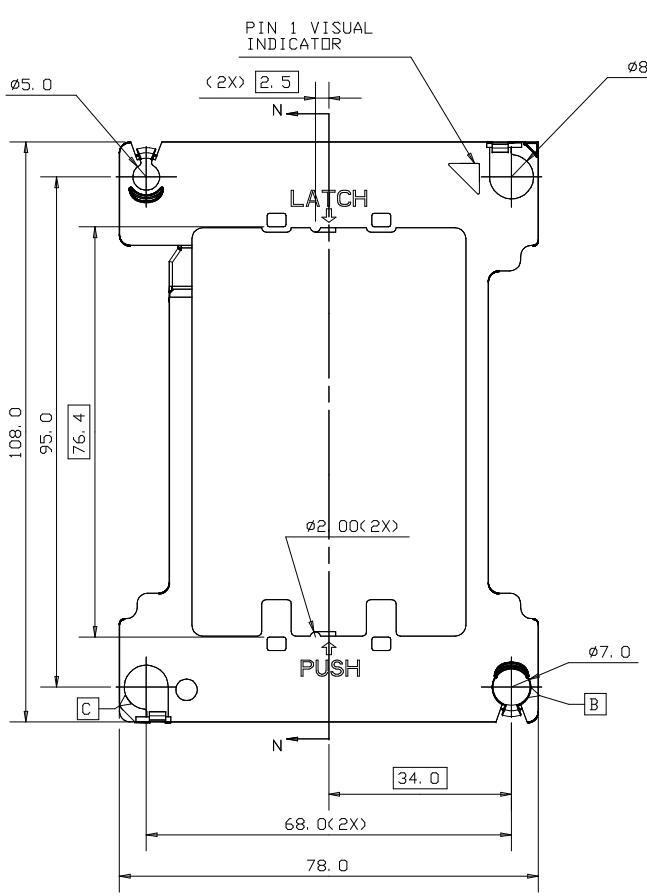
TITLE: Cold Plate, Liquid Cooler **L8**
BOM & Overall Dimension Drawing

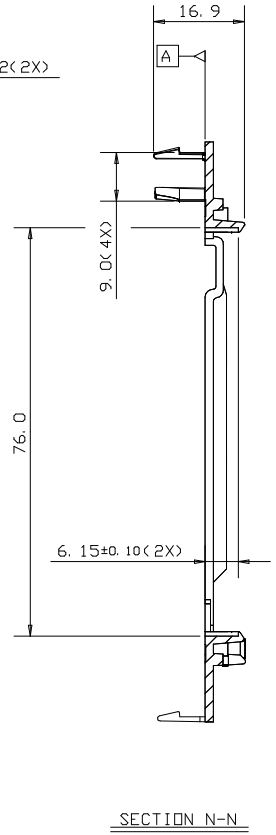
VIEW		DWG. No:	REV.
UNITS	MM	DYN-BD-CP	1.0

SOLIDWORKS GENERATED DRAWING, DO NOT CHANGE BY HAND.

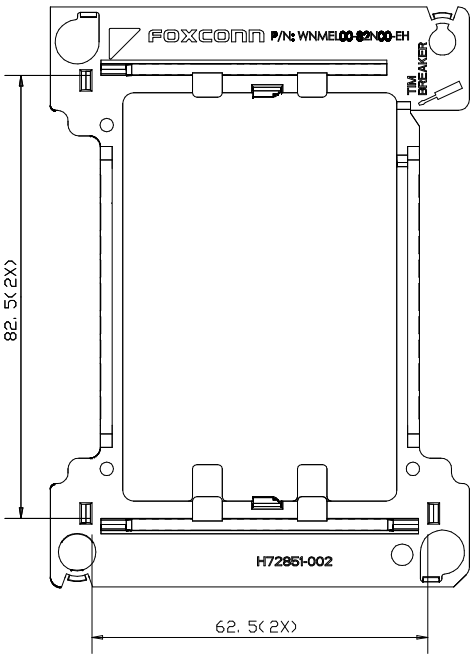
REV.	ECN. NO.	APPD.
A	BC-16-0033657	NICK LIN

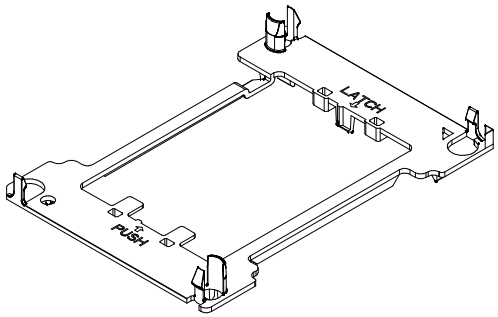
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. MATERIAL: PC-ABS, BLACK.
4. HARMFUL MATERIAL CONTROL PLEASE FOLLOW DOC. NO. "EPI12".
5. PLEASE CONTACT FOXCONN SALES REPRESENTATIVE TO VERIFY PRODUCT DETAIL AND AVAILABILITY.





SECTION N-N





(FOR REFERENCE ONLY)

X. ±	X.° ± 1°	UNITS mm	NAME(INTENDED USE)	FOXCONN® FOXCONN INTERCONNECT TECHNOLOGY LIMITED.
.X± 0.3	.X°±	MAT'L 3	LGA3647 SKX-EP BOLSTER	
.XX± 0.13	.XX°±		PART NO.(INTENDED USE) WNMEL00-82N00-EH	CLASS: □CONFIDENTIAL □SECRET ■GENERAL
.XXX±	.XXX°±	FINISH		TITLE: SKX-EP NARROW NON-FABRIC CPU CARRIER
THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF FOXCONN INTERCONNECT TECHNOLOGY LIMITED AND SHALL NOT BE REPRODUCED COPIED OR USED IN ANY MANNER WITHOUT THE PRIOR WRITTEN CONSENT OF FOXCONN INTERCONNECT TECHNOLOGY LIMITED.		Q'TY	APPD: Simon Szu CHKD: Bono Liao DR: Daryl Tan 8/13'16	DWG NO.: 351-0000-1352
				SCALE 1:1 / SHEET 1/1 / REV. A

PART NUMBER	WNMEL00-82N00-EH

FK2B00065A

TOP MOTOR

DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

Specification for Approval

Customer:	
Model Number:	DF124028BM-PWM (40*40*28mm)
Part Number:	LF04280026
Issued Date:	Friday, March 11, 2016
Version:	A

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	*Taipei Office* *(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

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1. SCOPE

   This specification defines the electrical and mechanical characteristics of the ☐ AC / ■ DC Brush Less (☐Sleeve Bearing /☐1-Ball 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	12V±10%		
3.	PWM Frequency 25KHz	Duty Cycle D＝20%	Duty Cycle D＝50%	Duty Cycle D＝100%
4.	Start Voltage	DC 7V		
5.	Air Flow – At rated voltage zero static pressure (minimal value)	0.147 m^3 /z min (5.175CFM)	0.393m^3 /z min (13.869CFM)	0.704m^3 / min (24.840CFM)
6.	Static Pressure – At rated voltage At zero air flow	1.39mm-H_2O (0.055inch-H_2O)	9.98mm-H_2O (0.393inch-H_2O)	32.01mm-H_2O (1.260inch-H_2O)
7.	Input Current (Max.)	0.10A	0.25A	0.70A
8.	Speed (Max.)	2500RPM ±10%	6700RPM ±10%	12000RPM ±10%
9.	Acoustical Noise	18.74dBA	40.15dBA	52.80dBA
10.	Input Power	1.2W	3.0W	8.4W
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 (40 °C or 104 °F)	70,000 hours		
14.	Rotation	Anticlockwise Air Discharged		
15.	Lead Wires	UL 1061, awg 28 or Equivalent “-“: Black; “+”: Yellow;”s”: Green”;PWM”: Blue.		

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 Ball Bearing
5.	Weight	40±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. Lineear 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	18.74/40.15/52.80dBA – Curve (19.24/40.65/53.30Max) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

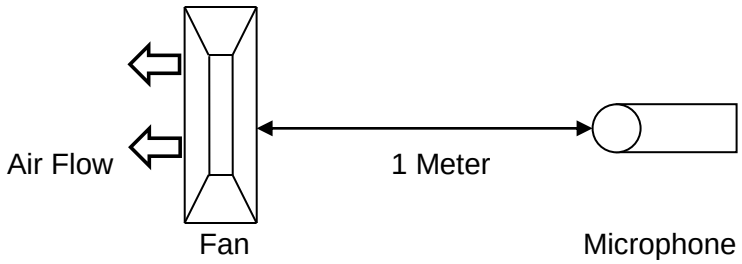


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.

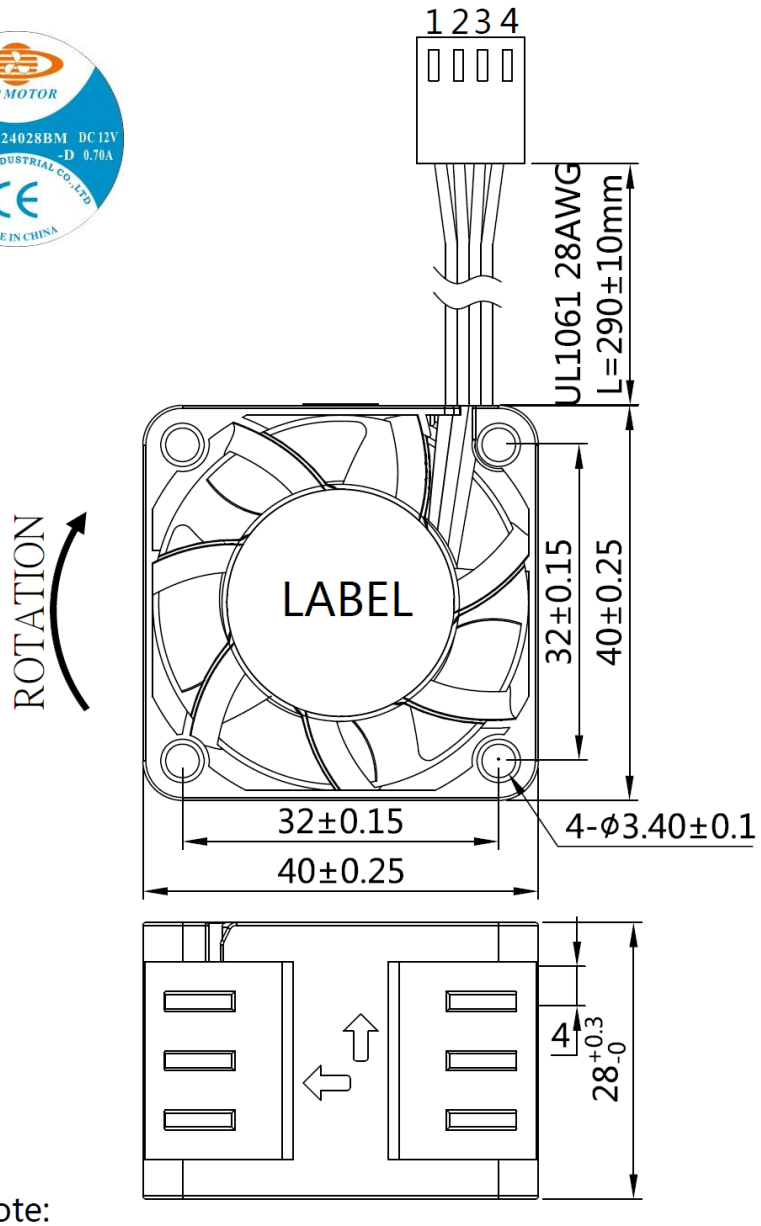
5. PROTECTION

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 con dition 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

6.1. Product Dimension

DIMENSION:



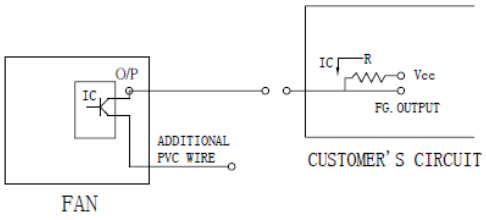
Note:

1. Lead Wire: 1061#28AWG 80°C 300V UL,CSA APPROVAL
   PIN 1: Black Wire ----- Ground
   PIN 2: Yellow Wire ----- Power
   PIN 3: Green Wire ----- Signal
   PIN 4: Blue Wire ----- PWM
2. Connector: White of 2.54-4PIN or Equivalent

6.2. Frequency Generator Output

FREQUENCY GENERATOR O/P:

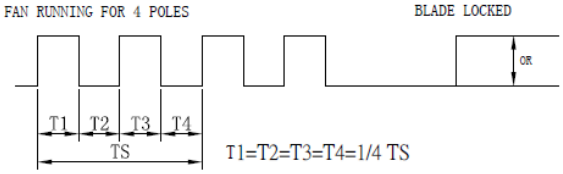
Frequency generator function is activated by an internal IC for customer's application.
Electrical schematic:



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:**

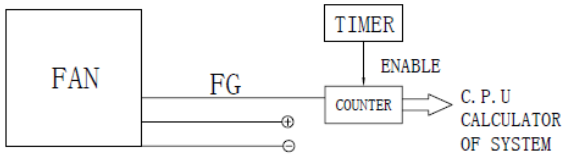


N=R.P.M. (Rotation speed will be different for various models L/M/H/HH/VH/SH)
TS=60/N (Sec)
* Voltage level after blade locked

- **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.

6.3. TUV Certificate

Zertifikat *Certificate*

TÜV

Zertifikat Nr. *Certificate No.*: R 50064443
Blatt *Page*: 0007

Ihr Zeichen *Client Reference*	Unser Zeichen *Our Reference*	Ausstellungsdatum	*Date of Issue (day/mo/yr)*
12046290/LC Tech	ZTW1-CCO- 10013649 006	07.05.2007	

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

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

Prüfzeichen *Test Mark*
TÜV Rheinland Product Safety — BAUART GEPRÜFT — TYPE APPROVED

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 (Addition)

Bezeichnung : DF(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 (Rated Voltage) : DC 5V ((X1)= 05); DC 12V ((X1)= 12); DC 24V ((X1)= 24)
Nennstrom (Rated Current) : siehe Anlage (see appendix)

TÜV Rheinland Product Safety GmbH — TÜV Rheinland — Zertifizierungsstelle — 3

ANLAGE (Appendix): 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.

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. Stoelzel

6.4. UL Certificate

ONLINE CERTIFICATIONS DIRECTORY

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Fans, Electric - Component

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Fans, Electric - Component

See General Information for Fans, Electric - Component

DYNAEON INDUSTRIAL CO LTD E157868
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

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 xxxxxxxxx, 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 th1rough 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-ZZZZZ-(A), DB127515(X)H-ZZZZZ-(A), DB127515(X)M-ZZZZZ-(A), DB127515(X)L-ZZZZZ-(A).

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

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.

Marking: Company name or trademark TOP MOTOR and model designation.

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Fans, Electric Certified for Canada - Component

See General Information for Fans, Electric Certified for Canada - Component

DYNAEON INDUSTRIAL CO LTD E157868
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

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 xxxxxxxxx, 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 th1rough 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-ZZZZZ-(A), DB127515(X)H-ZZZZZ-(A), DB127515(X)M-ZZZZZ-(A), DB127515(X)L-ZZZZZ-(A).

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

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.

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

Last Updated on 2015-10-06

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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 whthin the range 12V+/-1.2V.

Current

Peak fan current draw during start-up operation(with 13.2V applied,with fan operating in the free stream condifion)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 cnnector: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 S peed Requirements

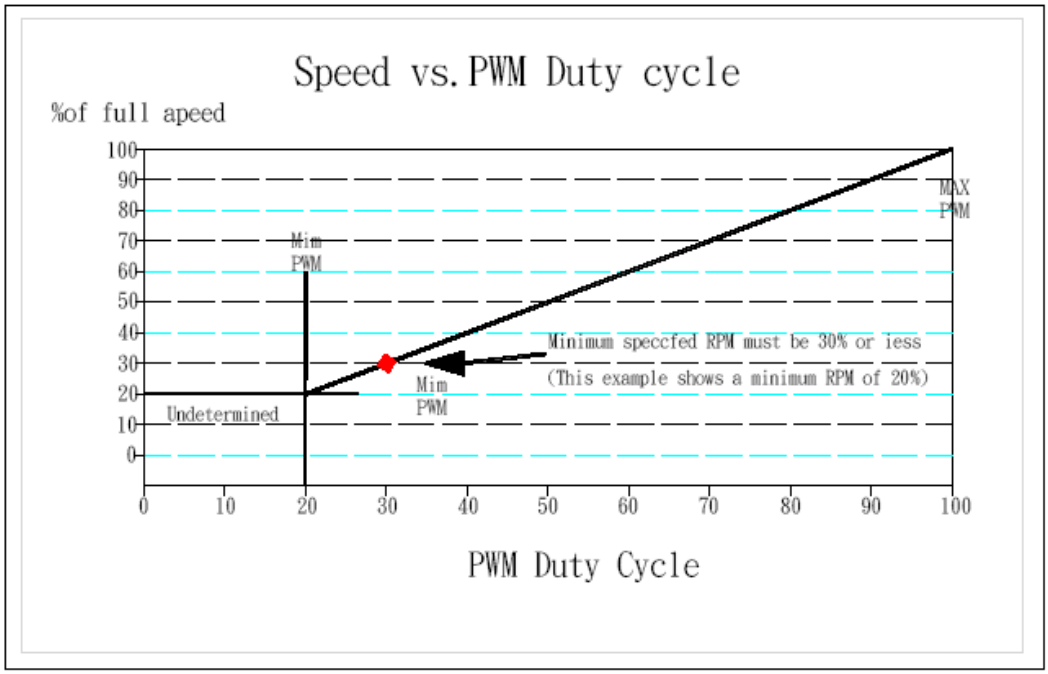
The vendor shall specify the minimum RPM and the corresponding PWM duty cycle. This specified minimum RPM shall be 30% of maximum RPM or less.The fan shall be able to start and run at this RPM. To allow a lower specified minimum RPM,it is acceptable to provide a higher PWM duty cycle to the fan motor 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.

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 ±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 floolw ing 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.

DYNATRONCORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

Specification for Approval

Customer:	
Model Number:	1U watercooler pump
Part Number:	
Issued Date:	Wednesday, August 31, 2016
Version:	A

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	*Taipei Office* *(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

1. SCOPE

This specification defines the electrical and mechanical characteristics of the □ AC / ■ DC Brush Less (■Sleeve 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.	Start Voltage	DC 9 V
3.	Operating Voltage	10.2V~13.8V
4.	Flow - (minimal value)	2.0 LPM (053 CFM)
5.	Input Current	0.25 A (Max)
6.	Input Power	3.0 W
7.	Speed	4000RPM±10%
8.	Insulation Resistance – Between Frame and Terminal	10 M ohm at DC 500 V
9.	Dielectric Strength – Between Frame and Terminal	5 mA (Max.) @ AC 500 V 60 Hz 1 min.
10.	Life – Continuous operating under normal temperature (25 °C or 77 °F)	35,000 hours
11.	Rotation	Anticlockwise Air Discharged
12.	Autorestart Time	3-5sec
13.	Lead Wires	UL 2468, awg 26 or Equivalent “-”: Black; “+”: Black; “s”: Black.
14.	Acoustical Noise	30.00dBA

3. MECHANICAL CHARACTERISTICS

Items		Description
1.	Dimension	Display as Drawing
2.	Frame	PPS UL94V-0 (Black GP)
3.	Impeller	PPS UL94V-0 (Black GP)
4.	Bearing System	Ceramic Bearing
5.	Weight	56±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. Lineear 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	30.00dBA – Curve (30.50Max) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

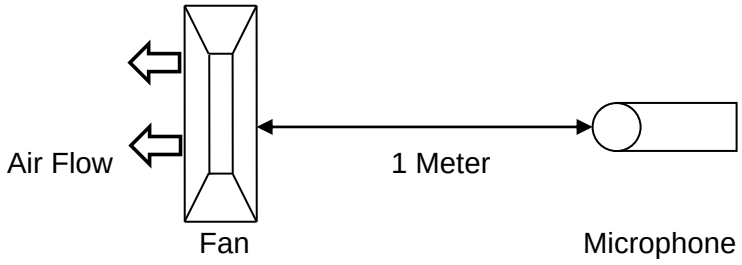
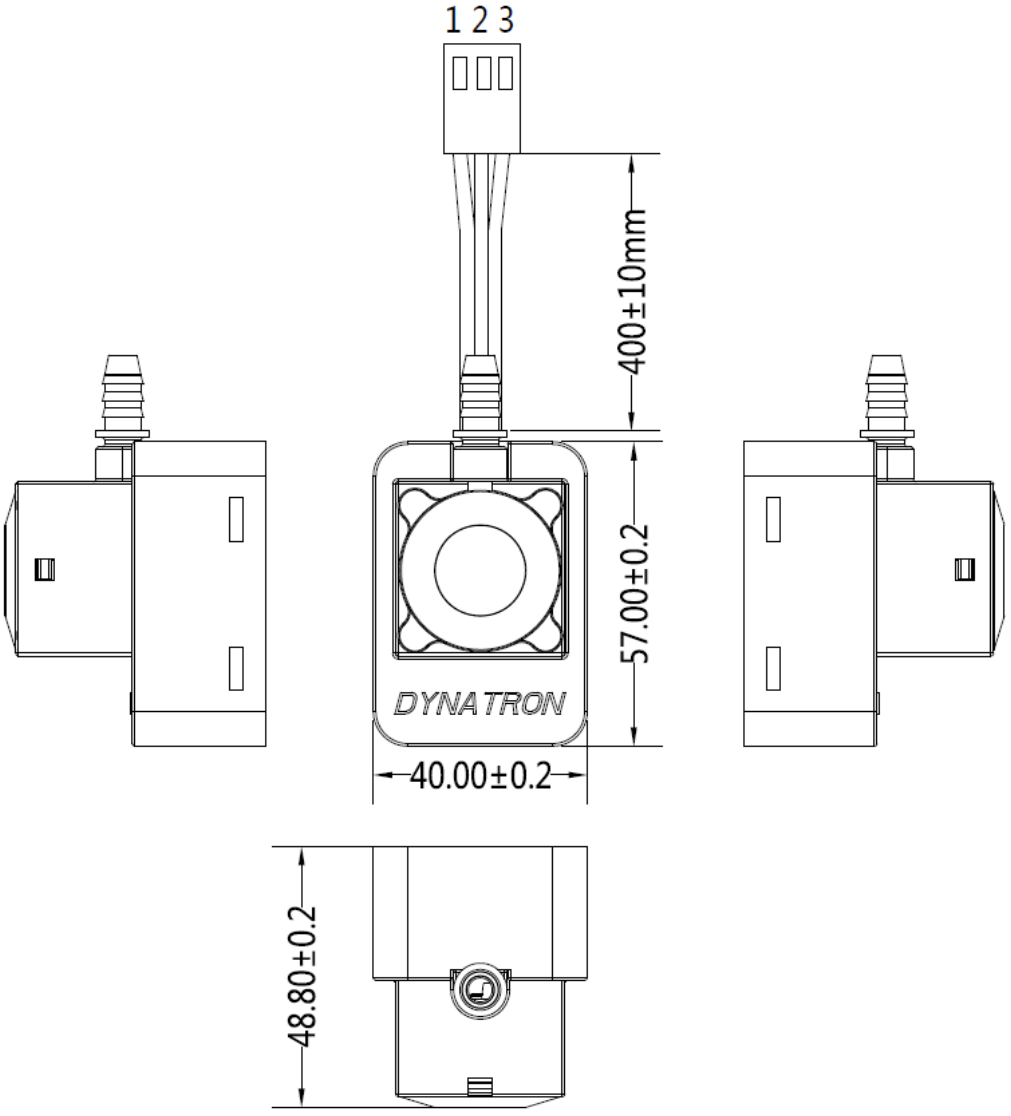


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.

DIMENSION:



1.Note:
1.Leed Wire:UL2468 #26AWG
PIN 1: Black Wire ----Ground
PIN 2: Black Wire ----Power
PIN 3: Black Wire ----Signal
2.Connector:2510-3P

Certificate of Environment Protection
環保證明書

Document Number: RH-L8-R0

Customer: 客戶名稱:	***Company:*** _____ ***Address:*** _____ ***Phone Number:*** _____ - _____- _____
Issue Date:	06/02/2016
Product Model Number:	*L8*

Dynatron Corporation hereby declares and certifies that all components manufactured

are RoHS compliant according to the definitions and restrictions given by the European Union's

Restriction (Directive 2002/95/EC) (Decision2011/65/EU)RoHS 2, on the restriction of the use of certain Hazardous Substances in the electrical and electronic equipment. Also, compliance to the most recent list of substances on the REACH candidate list.

Number of substances on

the Candidate List: 168 (last updated: 17/12/2015)

No exemptions are claimed in order for the part to be compliant with the RoHS directive.

Dynatron Corporation / 政久興業股份有限公司證明所有產品,零件 (包括附屬品, 包裝類) 之環境管理物質完全符合 RoHS, WEEE, 及該環保標準之規定, 並承諾遵 循以上之證明.

Dynatron Corporation.
33200 Western Ave,
Union City, CA 94587
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Title (職務): ASSISTANT-MANAGER

Signature (簽字): Dan Lee

Date: 06 / 02 / 2016