

# L30

1U Liquid Cooler

**PRODUCT SPECIFICATIONS**

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## Model Number: L30

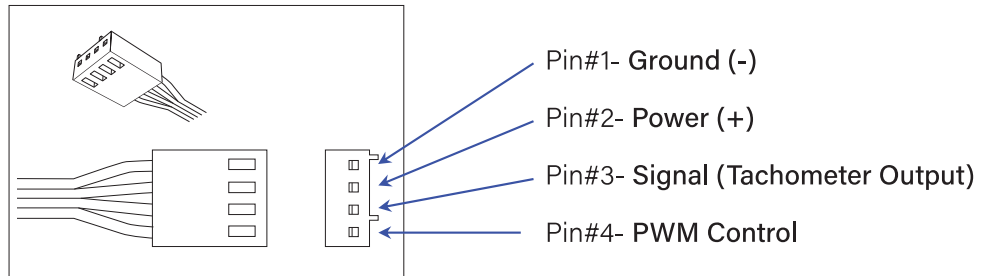
- Desktop Liquid Cooling Solution Recommended for CPU Models as Following
  - Intel® Processor, Socket LGA4189
- For 1U server and up

## Overall Specification

- Cold Plate Module with Copper base
- Space-saving lightweight Radiator
- 40 mm Cooling fans with 4-pin PWM connector
- Stand-alone Water Pump with Powerful Flow Rate 1.7 Litter Per Minute
- EPDM Tube Assembled
- Mounting Accessories are included
- Shin-Etsu 7762 or Equivalent Thermal Compound Pre-Printed on Base
- Support CPU Overclocking Power Mode up to 270 Watts Heat Dissipation

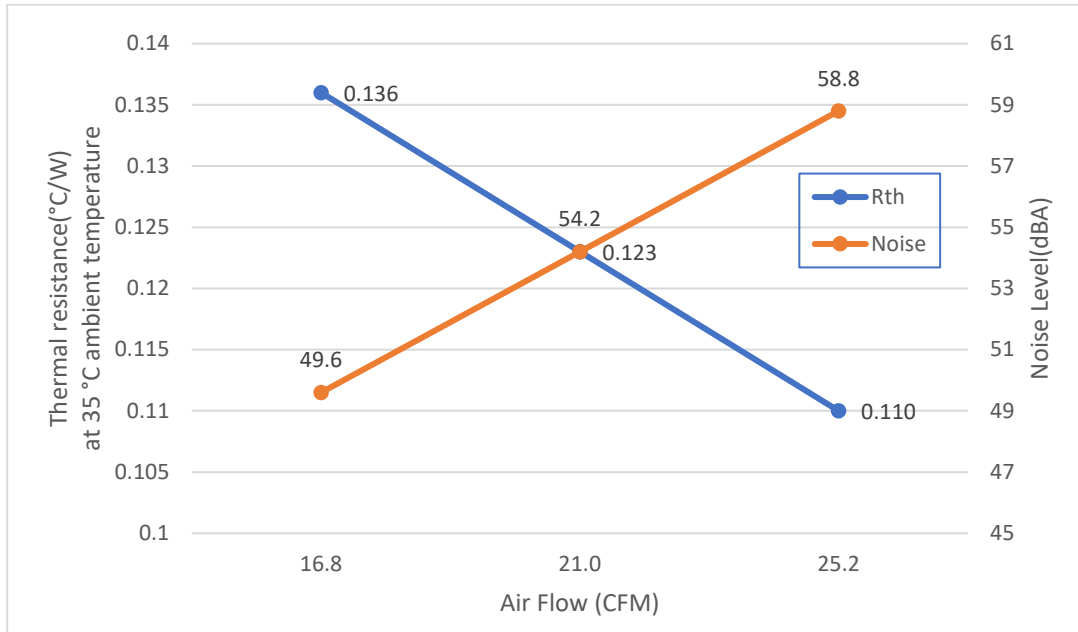
## Fan Specification

|                       |                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------|
| Model Number          | DF124028BM-PWMG                                                                                                |
| Dimension             | 40 x 40 x 28 mm                                                                                                |
| Bearing               | Double Ball                                                                                                    |
| Rated Voltage         | 12V                                                                                                            |
| Rated Speed           | At Duty Cycle 0~20%: 2500 ± 10% RPM<br>At Duty Cycle 50%: 6700 ± 10% RPM<br>At Duty Cycle 100%: 12000 ±10% RPM |
| Input Power           | At Duty Cycle 0~20%: 1.2 W<br>At Duty Cycle 50%: 3.0 W<br>At Duty Cycle 100%: 8.4 W                            |
| Maximum Airflow       | At Duty Cycle 0~20%: 5.175 CFM<br>At Duty Cycle 50%: 13.869 CFM<br>At Duty Cycle 100%: 24.840 CFM              |
| Rated Static Pressure | At Duty Cycle 0~20%: 1.39 mm-H2O<br>At Duty Cycle 50%: 9.98 mm-H2O<br>At Duty Cycle 100%: 32.01 mm-H2O         |
| Acoustical Noise      | At Duty Cycle 0~20%: 18.74 dBA<br>At Duty Cycle 50%: 40.15 dBA<br>At Duty Cycle 100%: 52.8 dBA                 |

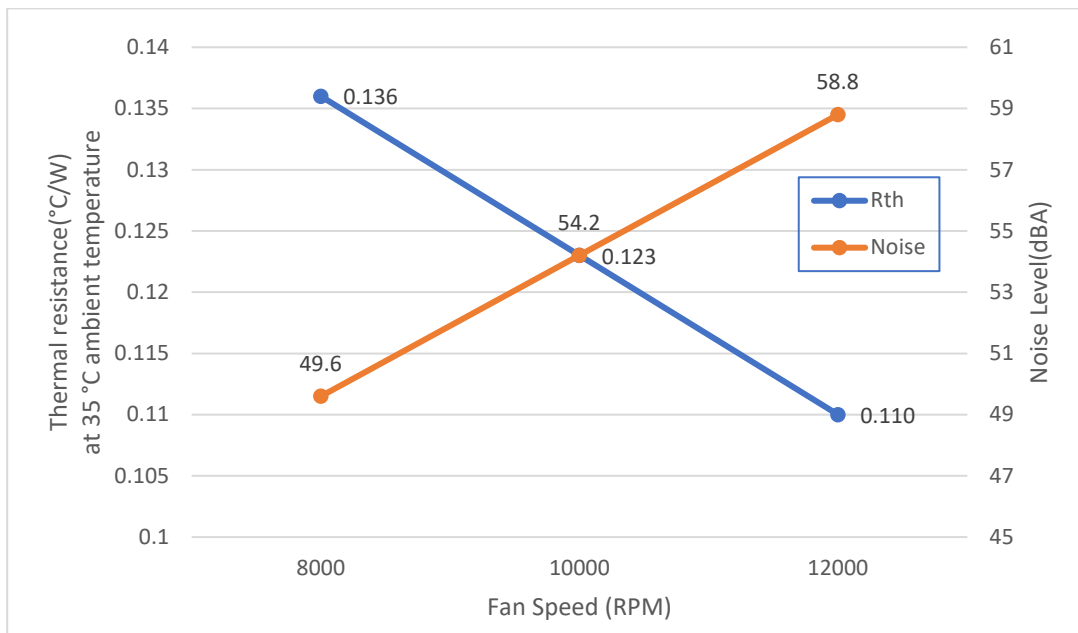
**Lead Wire Pin Out  
Diagram**

## L30 Thermal Performance Curve

### Cooling performance vs. Airflow



### Cooling Performance vs. Fan speed



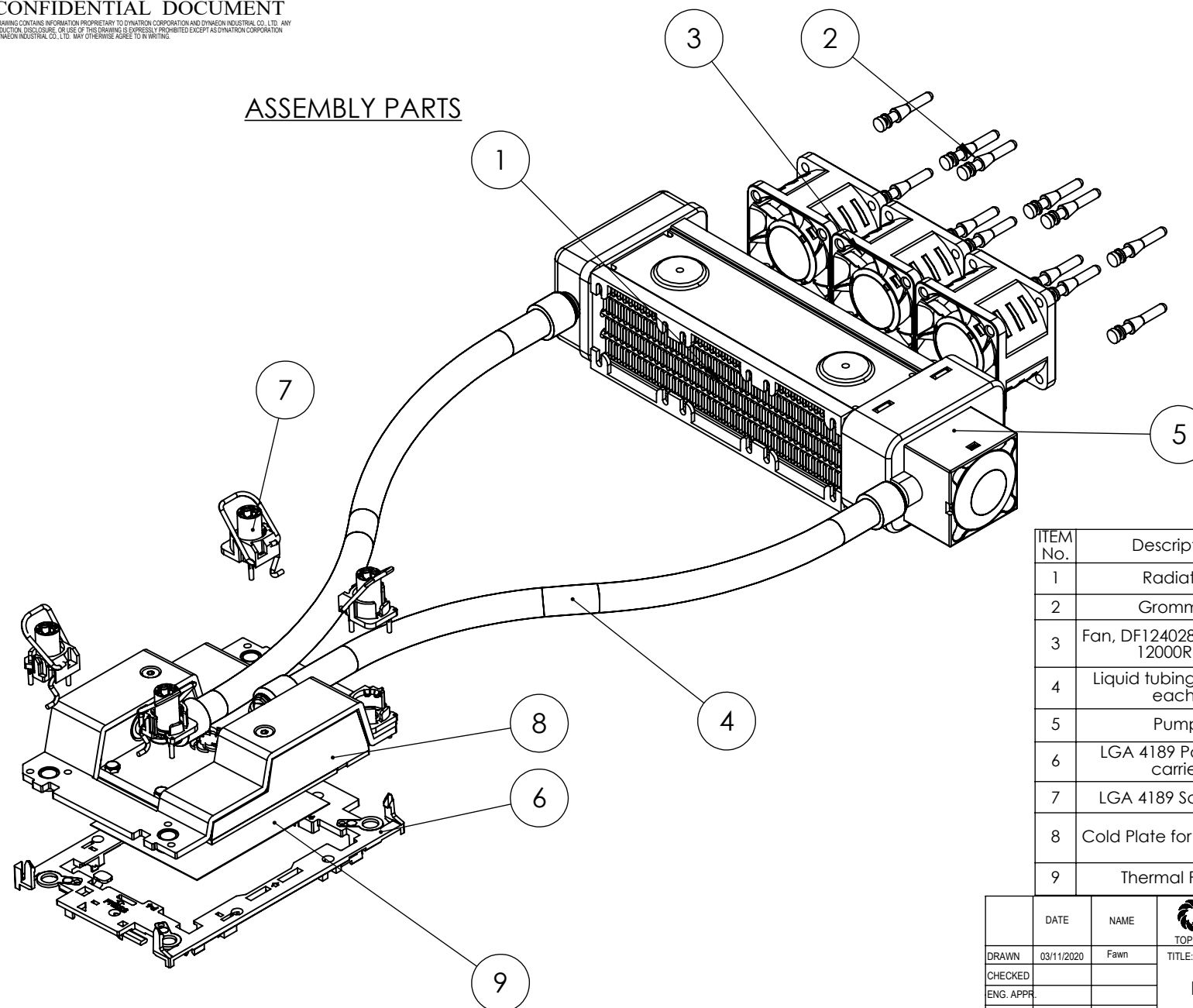
# CONFIDENTIAL DOCUMENT

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| REV | DESCRIPTION     | CHECKER | DATE       |
|-----|-----------------|---------|------------|
| 0.0 | INITIAL RELEASE | Fawn    | 03/11/2020 |
|     |                 |         |            |
|     |                 |         |            |
|     |                 |         |            |

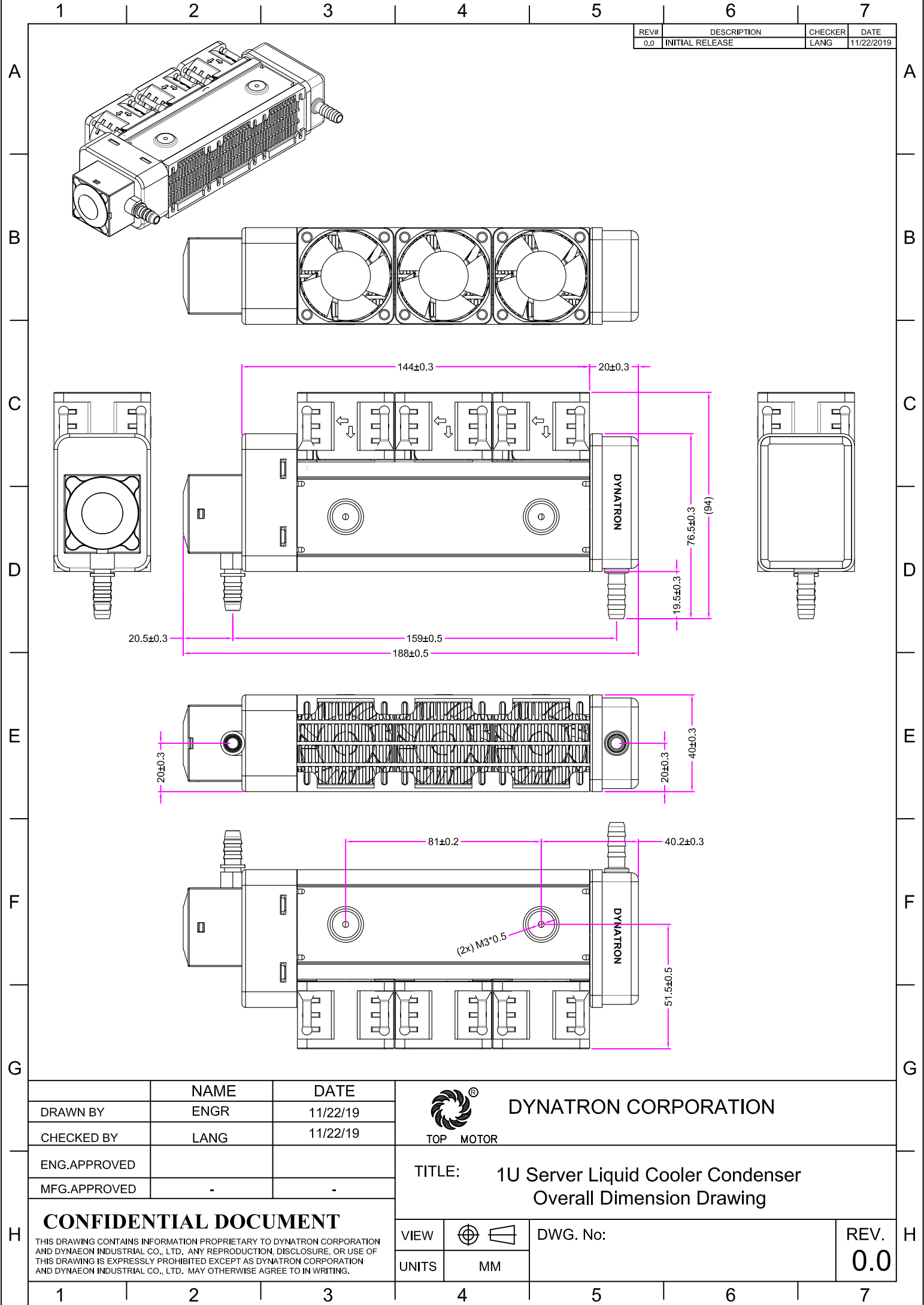
## ASSEMBLY PARTS

## WHOLE SET

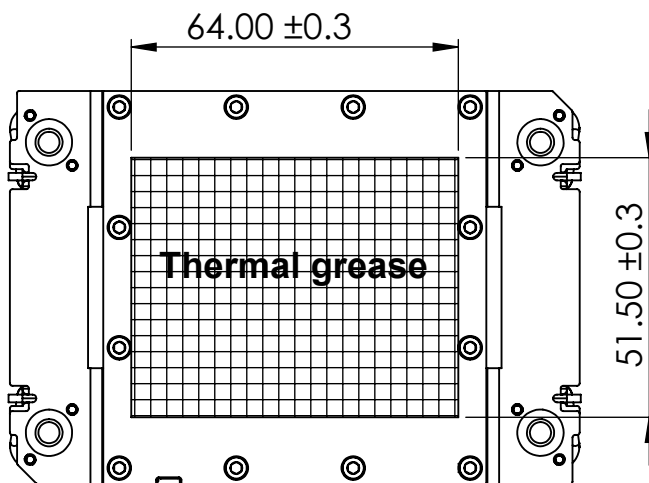
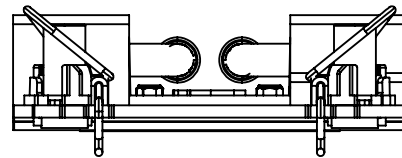
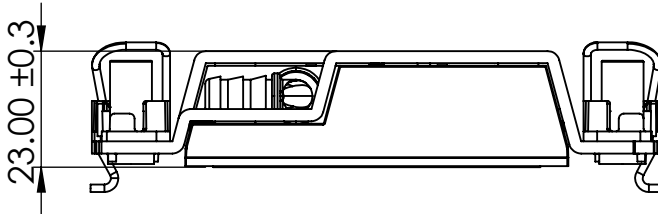
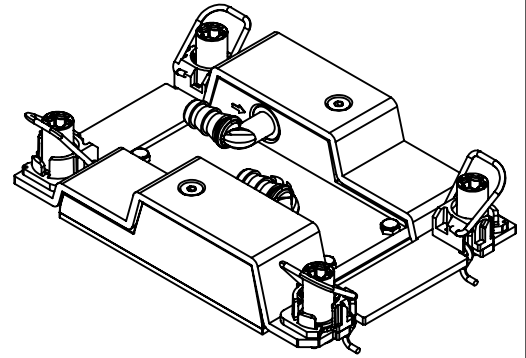
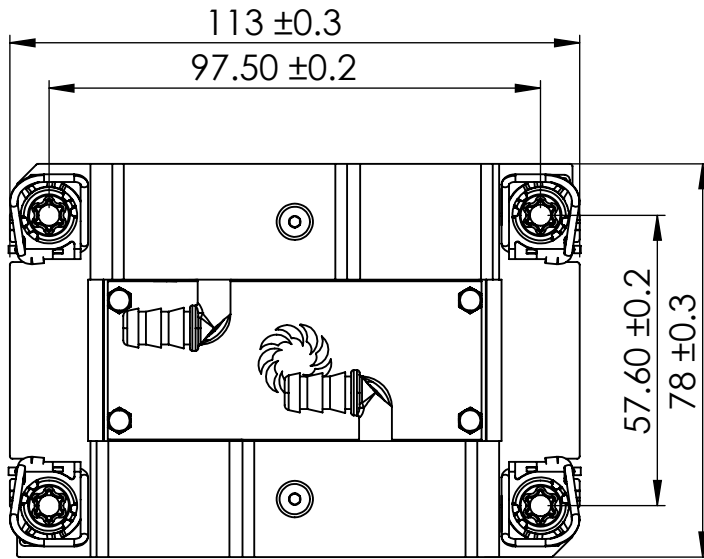


| ITEM No. | Description                   | Material                                                       | QTY. |
|----------|-------------------------------|----------------------------------------------------------------|------|
| 1        | Radiator                      | Aluminum Alloy                                                 | 1    |
| 2        | Grommet                       | Rubber                                                         | 12   |
| 3        | Fan, DF124028BM-PWM, 12000RPM | Plastic                                                        | 3    |
| 4        | Liquid tubing(300mm each)     | EPDM                                                           | 2    |
| 5        | Pump                          | Plastic                                                        | 1    |
| 6        | LGA 4189 Package carrier      | Plastic                                                        | 1    |
| 7        | LGA 4189 Screw set            | Plastic                                                        | 4    |
| 8        | Cold Plate for LGA 4189       | SK7 Retention bracket<br>Plastic enclosure<br>Copper 1100 Base | 1    |
| 9        | Thermal Paste                 | Shin-Etsu thermal grease                                       | 1    |

|            |            |      |                                                                              |                   |
|------------|------------|------|------------------------------------------------------------------------------|-------------------|
|            | DATE       | NAME | DYNATRON CORPORATION<br>TOP MOTOR                                            |                   |
| DRAWN      | 03/11/2020 | Fawn | TITLE:<br><b>1U Liquid cooler L30<br/>BOM&amp; Exploded Assembly Drawing</b> |                   |
| CHECKED    |            |      |                                                                              |                   |
| ENG. APPR. |            |      |                                                                              |                   |
| MFG. APPR. |            |      |                                                                              |                   |
| Q.A.       |            |      | DWG. No:<br><b>DYN-EP-L30</b>                                                |                   |
| COMMENTS:  |            |      |                                                                              | REV<br><b>0.0</b> |



| REV# | DESCRIPTION     | CHECKER | DATE       |
|------|-----------------|---------|------------|
| 0.0  | Initial release | Fawn    | 05/27/2021 |
|      |                 |         |            |
|      |                 |         |            |



|               | NAME | DATE       |
|---------------|------|------------|
| DRAWN BY      | Fawn | 05/27/2021 |
| CHECKED BY    |      |            |
| ENG. APPROVED |      |            |
| MFG. APPROVED | -    | -          |



DYNATRON CORPORATION

TOP MOTOR

TITLE:

1U Liquid cooler **L30**  
Overall Dimension Drawing

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|       |    |
|-------|----|
| VIEW  |    |
| UNITS | MM |

DWG. No:

DYN-DM-L30

REV.  
0.0



# 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<br><b>Dynatron Corporation</b><br>33200 Western Avenue<br>Union City, CA 94587<br>U.S.A.<br>Tel: 510-498-8888<br>Fax: 510-498-8488 | Taipei Office<br>(Taiwan, R.O.C.)<br>8F, No. 35, Lane: 221<br>Gang Cian. Road, Taipei,<br>Taiwan, R.O.C.<br>Tel: 886-2-27995799 (Rep.)<br>Fax: 886-2-2799-9577 | Manufactory<br><b>TOP MOTOR</b><br><b>TECHNOLOGY(HUI</b><br><b>ZHOU)CO,LTD</b><br>Baishi Village, QiuchangTown,<br>Huiyang<br>Dist, HuizhouCity, Guangdong<br>Province, P.R.China<br>Tel: 86-752-822-8000 (Rep.)<br>Fax: 86-752-822-8999 |
| Approval:                                                                                                                                                 | Check:                                                                                                                                                         | Handler:                                                                                                                                                                                                                                 |
| Simon Wang                                                                                                                                                | -                                                                                                                                                              | Hui mei                                                                                                                                                                                                                                  |



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*TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD*

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## 1. SCOPE

This specification defines the electrical and mechanical characteristics of the ☐ AC / ☒ DC Brush Less (☐ 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<br>D = 20%                                                              | Duty Cycle<br>D = 50%                                   | Duty Cycle<br>D = 100%                                   |
| 4.    | Start Voltage                                                          | DC 7V                                                                              |                                                         |                                                          |
| 5.    | Air Flow – At rated voltage zero static pressure (minimal value)       | 0.147 m <sup>3</sup> / z min<br>(5.175CFM)                                         | 0.393m <sup>3</sup> / z min<br>(13.869CFM)              | 0.704m <sup>3</sup> / min<br>(24.840CFM)                 |
| 6.    | Static Pressure – At rated voltage At zero air flow                    | 1.39mm-H <sub>2</sub> O<br>(0.055inch-H <sub>2</sub> O)                            | 9.98mm-H <sub>2</sub> O<br>(0.393inch-H <sub>2</sub> O) | 32.01mm-H <sub>2</sub> O<br>(1.260inch-H <sub>2</sub> O) |
| 7.    | Input Current (Max.)                                                   | 0.10A                                                                              | 0.25A                                                   | 0.70A                                                    |
| 8.    | Speed (Max.)                                                           | 2500RPM<br>±10%                                                                    | 6700RPM<br>±10%                                         | 12000RPM<br>±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.)<br>@ 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<br>“-”: Black; “+”: Yellow; “s”: Green; “PWM”: Blue. |                                                         |                                                          |



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## 3. MECHANICAL CHARACTERISTICS

| Items |                | Description            |
|-------|----------------|------------------------|
| 1.    | Dimension      | Display as Drawing     |
| 2.    | Frame          | PBT UL94V-0 (Black GP) |
| 3.    | Impeller       | PBT UL94V-0 (Black GP) |
| 4.    | Bearing System | Two 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)<br>Frequency Range: 10Hz<->55Hz/30SEC.<br>Linear Scanning 120 Cycle<br>Endurance Timer Per Axis: 30Min.<br>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<br>(19.24/40.65/53.30Max)<br>Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)        |

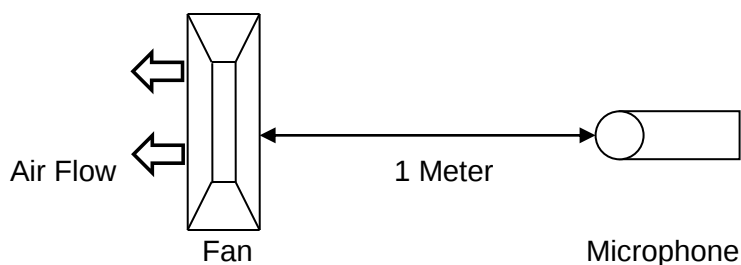


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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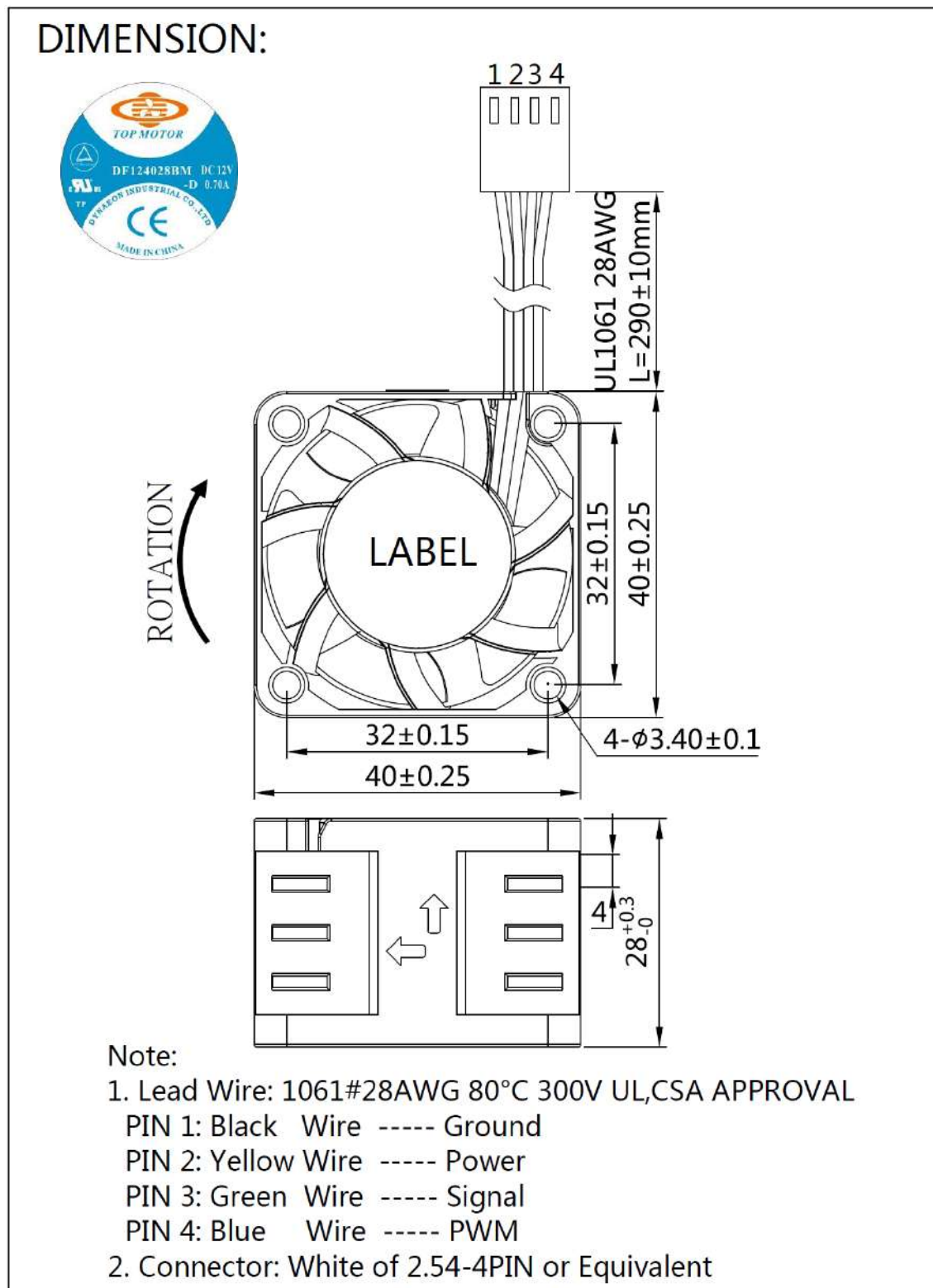
## 5. PROTECTION

| 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

## 6.1. Product Dimension





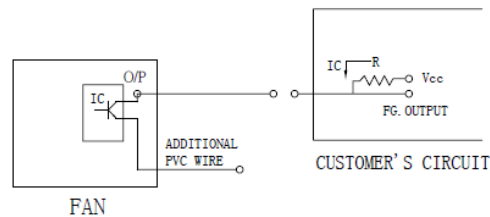
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### 6.2. Frequency Generator Output

#### FREQUENCY GENERATOR O/P:

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



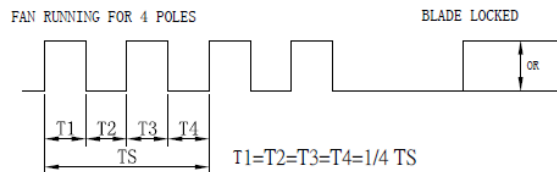
#### CUSTOMER'S CIRCUIT

$V_{cc}$  = 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:



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

$TS = 60/N$  (Sec)

\* Voltage level after blade locked

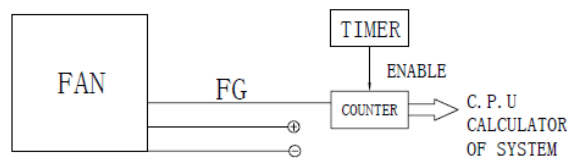
#### • OUTPUT LEVEL:

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.<br>R 50064443                                                                                                                                                                                                                                                                                        |                                                       | Blatt Page<br>0007                                                                                                                                                                                                              |                                   |                                                                                     |  |
| Ihr Zeichen Client Reference<br>12046290/LC Tech                                                                                                                                                                                                                                                                                    | Unser Zeichen Our Reference<br>ZTW1-CCO- 10013649 006 | Ausstellungsdatum<br>07.05.2007                                                                                                                                                                                                 | Date of Issue<br>(day/month/year) |                                                                                     |  |
| Genehmigungsinhaber License Holder<br>Dynaen Industrial Co., Ltd.<br>8F, No. 35, 37, Lane 221<br>Gang Cian Rd.<br>Neihu, Taipei 114<br>Taiwan, R.O.C.                                                                                                                                                                               |                                                       | Fertigungsstätte Manufacturing Plant<br>Dynaen Ind. Co., Ltd.<br>Ta-Li Management Zone<br>Ching-Hsi, Dongguan<br>P.R. China                                                                                                     |                                   |                                                                                     |  |
| Prüfzeichen Test Mark<br>                                                                                                                                                                                                                         |                                                       | Geprüft nach Tested acc. to<br>EN 60950-1:2001+A11                                                                                                                                                                              |                                   |                                                                                     |  |
| Zertifiziertes Produkt (Geräteidentifikation)<br>Certified Product (Product Identification)                                                                                                                                                                                                                                         |                                                       | Lizenzentgelte - Einheit<br>License Fee - Unit                                                                                                                                                                                  |                                   |                                                                                     |  |
| Ventilator (DC Fan)                                                                                                                                                                                                                                                                                                                 |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| wie Blatt (as page) 01                                                                                                                                                                                                                                                                                                              |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| Ergänzung (Addition)                                                                                                                                                                                                                                                                                                                |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| Bezeichnung : DF(X1) (X2) (X3) (X4) (X5) 2ZZZ2 - (X6)                                                                                                                                                                                                                                                                               |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| (Type Designation)                                                                                                                                                                                                                                                                                                                  |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| (X1) steht für (stands for): 05, 12, 24                                                                                                                                                                                                                                                                                             |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| (X2) steht für (stands for): 12, 14, 15, 25, 40, 50, 60, 70;<br>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)<br>freibleibend (blank)                                                                                                                                                                                                                                                                |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| Nennspannung : DC 5V ((X1)= 05); DC 12V ((X1)= 12);                                                                                                                                                                                                                                                                                 |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| (Rated Voltage) DC 24V ((X1)= 24)                                                                                                                                                                                                                                                                                                   |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| Nennstrom : siehe Anlage                                                                                                                                                                                                                                                                                                            |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| (Rated Current) (see appendix)                                                                                                                                                                                                                                                                                                      |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| ANLAGE (Appendix): 1                                                                                                                                                                                                                                                                                                                |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.<br>Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht.<br>This certificate is based on our Testing and Certification Regulation. The product<br>fulfills above mentioned requirements, the production is subject to surveillance. |                                                       |                                                                                                                                                                                                                                 |                                   |                                                                                     |  |
| TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln<br>Tel.: (+49/221) 8 06 - 13 71 e-mail: cert-validity@de.tuv.com<br>Fax: (+49/221) 8 06 - 39 35 http://www.tuv.com/safety                                                                                                                                          |                                                       | <br>Zertifizierungsstelle<br><br>Dipl.-Ing. F. Stöckel |                                   |                                                                                     |  |



# DYNATRON CORPORATION

## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

### 6.4. UL Certificate

15-10-29

GPWW2.E157868 - Fans, Electric - Component



ONLINE CERTIFICATIONS DIRECTORY

#### GPWW2.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 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).

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# DYNATRON CORPORATION

## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

15-10-29

GPWW2.E157868 - Fans, Electric - Component

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

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

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

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

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



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## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

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



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

E157868

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

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

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

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

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

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

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

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

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

Series 7515: Models DB127515(X)U-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).

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# DYNATRON CORPORATION

## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

15-10-29

GPWW8.E157868 - Fans, Electric Certified for Canada - Component

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

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

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

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

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



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# 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:  $V_{IL}=0.8V$

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.



# DYNATRON CORPORATION

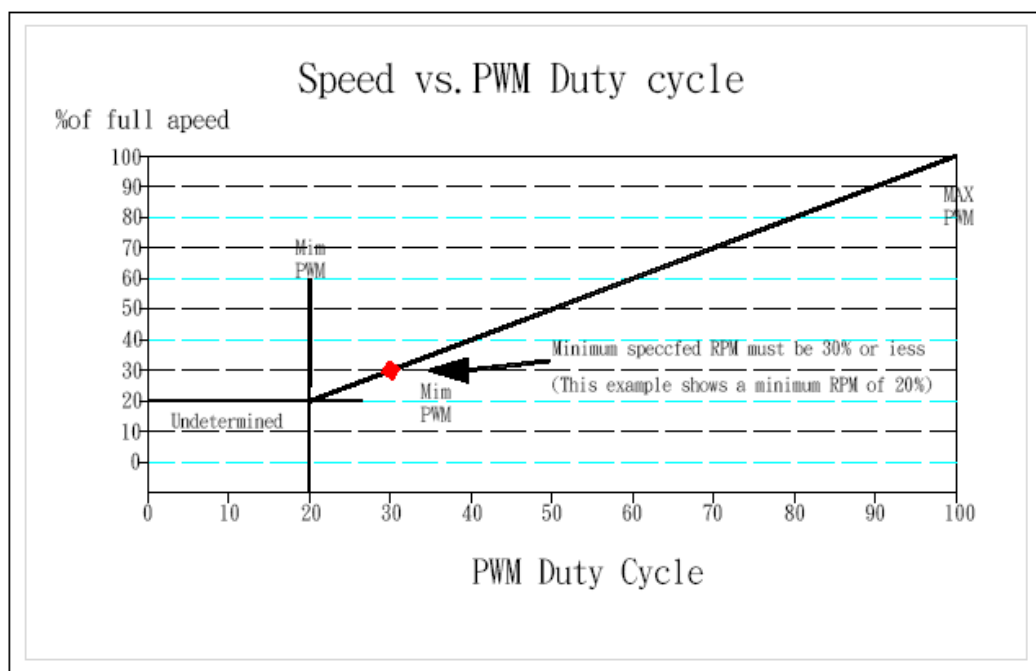
## TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

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 PWM, as a percentage of maximum.

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



# DYNATRON CORPORATION

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<br><b>Dynatron Corporation</b><br>33200 Western Avenue<br>Union City, CA 94587<br>U.S.A.<br>Tel: 510-498-8888<br>Fax: 510-498-8488 | Taipei Office<br>(Taiwan, R.O.C.)<br>8F, No. 35, Lane:221<br>Gang Cian. Road, Taipei,<br>Taiwan, R.O.C.<br>Tel: 886-2-27995799 (Rep.)<br>Fax: 886-2-2799-9577 | Manufactory<br><b>TOP MOTOR<br/>TECHNOLOGY(HUI<br/>ZHOU)CO,LTD</b><br>Baishi Village, QiuchangTown,<br>Huiyang<br>Dist, HuizhouCity, Guangdong<br>Province, P.R.China<br>Tel: 86-752-822-8000 (Rep.)<br>Fax: 86-752-822-8999 |
| Approval:                                                                                                                                                 | Check:                                                                                                                                                        | Handler:                                                                                                                                                                                                                     |
| Simon Wang                                                                                                                                                | -                                                                                                                                                             | Hui mei                                                                                                                                                                                                                      |



# DYNATRON CORPORATION

*TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD*

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# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 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 Rate (minimal value)                                                | 1.7 LPM                                                              |
| 5.    | Input Current                                                            | 0.25 A (Max)                                                         |
| 6.    | Input Power                                                              | 3.0 W                                                                |
| 7.    | Speed                                                                    | 4000RPM $\pm 10\%$                                                   |
| 8.    | Insulation Resistance –<br>Between Frame and Terminal                    | 10 M ohm at DC 500 V                                                 |
| 9.    | Dielectric Strength –<br>Between Frame and Terminal                      | 5 mA (Max.)<br>@ AC 500 V 60 Hz 1 min.                               |
| 10.   | Life – Continuous operating under<br>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<br>“-”: Black; “+”: Black; “s”: Black. |
| 14.   | Acoustical Noise                                                         | 30.00dBA                                                             |



# DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

## 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)<br>Frequency Range: 10Hz<->55Hz/30SEC.<br>Linear Scanning 120 Cycle<br>Endurance Timer Per Axis: 30Min.<br>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)<br>Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)                                   |

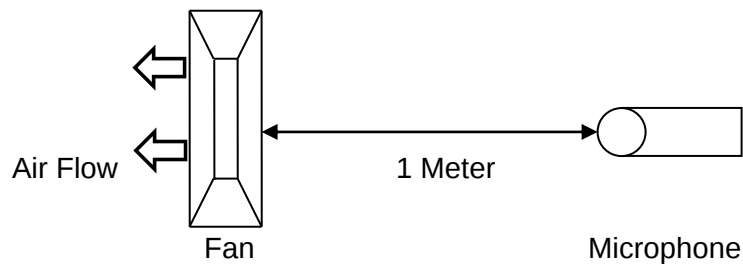


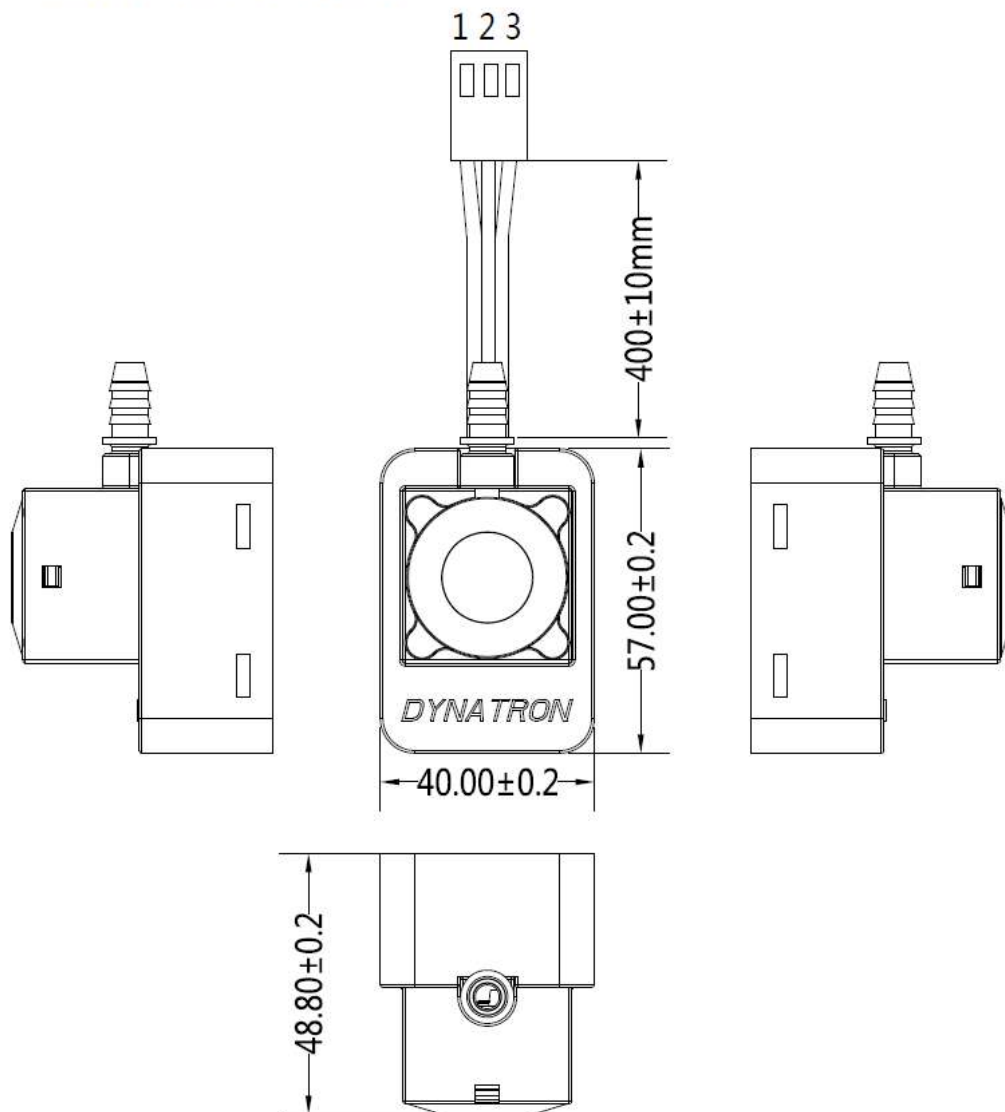
Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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## 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-L30-R0

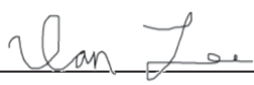
|                              |                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------|
| <b>Customer:</b><br>客戶名稱:    | <b>Company:</b> _____ <b>Address:</b> _____<br><b>Phone Number:</b> ____ - ____ - ____ |
| <b>Issue Date:</b>           | 05/27/2021                                                                             |
| <b>Product Model Number:</b> | L 30                                                                                   |

**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.**  
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**Title (職務):** \_\_\_\_\_ ASSISTANT-MANAGER

**Signature (簽字):** \_\_\_\_\_ 

**Date:** 05 / 27 / 2021

