



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

Specification for Approval

Customer:		
Model Number:	A64	
Part Number:	LC10200002	
Issued Date:	Friday, June 26, 2026	
Version:	A	
Customer Approval		
Approval:	Check:	
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Fan fengwei	-	Xiao li



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1. SCOPE

This specification defines the electrical and mechanical characteristics of the
☐ AC / ☒ DC Brush less (☐ Liquid State / ☒ 2-Balls Bearing)axial flow fan,
 which is carefully designed and manufactured for your special needs by
 Dynatron Corporation.

2. ELECTRICAL CHARACTERISTICS

Items		Description		
1.	Rated Voltage	DC 12 V		
3.	PWM Frequency 25KHz	Duty Cycle D=20%	Duty Cycle D=50%	Duty Cycle D=100%
4.	Start Voltage	8V		
5.	Air Flow – At rated voltage zero static pressure (minimal value)	0.45 m ³ /z min (15.02CFM)	1.310m ³ /z min (46.25CFM)	2.930m ³ /z min (403.45CFM)
6.	Static Pressure – At rated voltage At zero air flow	0.54mm-H ₂ O (0.021inch-H ₂ O)	4.61mm-H ₂ O (0.181inch-H ₂ O)	18.9mm-H ₂ O (0.744inch-H ₂ O)
7.	Input Current (Max.)	0.06A	0.24A	2.0A
8.	Speed (Max.)	1200RPM ±200	3000RPM ±10%	6000RPM ±10%
9.	Acoustical Noise	6.8dBA	21.0dBA	39.6dBA
10.	Input Power	0.72W	2.88W	24.0W
11.	Insulation Resistance – Between Frame and Terminal	10 M ohm at DC 500 V		
12.	Dielectric Strength – Between Frame and Terminal	5 mA (Max.) @ AC 500 V 60 Hz 1 min.		
13.	Life – Continuous operating under normal temperature (25 °C or 77 °F)	50,000 hours		
14.	Rotation	Anticlockwise Air Discharged(Forward facing blades)		
15.	Lead Wires	UL 1061, awg 26 or Equivalent “-”: Black; “+”:Black;”s”: Black. ”PWM”: Black.		



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3. MECHANICAL CHARACTERISTICS

Items		Description
1.	Dimension	Display as Drawing
2.	Frame	PBT UL94V-0 (Coffee Colour GP)
3.	Impeller	PBT UL94V-0 (Milk Coffee GP)
4.	Bearing System	Two ball Bearing
5.	Weight	--

4. ENVIRONMENTAL

Items		Description
1.	Operating Temperature	- 10 °C ~ + 65 °C (65 %RH)
2.	Storage Temperature	- 30 °C ~ + 70 °C (65 %RH)
3.	Vibration Test	Displacement Amplitude: 0.75mm(Equivalent 10G) Frequency Range: 10Hz<->55Hz/30SEC. Linear Scanning 120 Cycle Endurance Timer Per Axis: 30Min. Orientation:X,Y,Z.
4.	Drop Test	Motor withstands one free body drop from 30 cm in high onto 10 mm thickness of wooden board for each of the three faces in minimum packing condition.
5.	Acoustic Noise	39.6dBA – Curve (Max40.1dBA) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.)

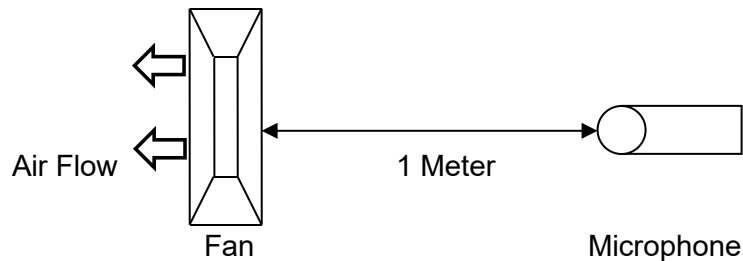


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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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.

6. ATTACHMENTS

- 6.1. Assembly Parts
- 6.2. Product Dimension
- 6.3. Frequency Generator Output
- 6.4. Electrical specifications for pwm production



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6.1.Assembly Parts

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FileNo	ITEM#	DESCRIPTION	CHECKER	DATE
EP-856	01	首次发行	张俊锐	2026.03.24
	02			

配件

螺丝配件

风扇扣合散热片，不锁附螺丝

导热膏

ITEM NO.	P/N NO.	DESCRIPTION	MATERIAL	QTY.
1	50905580	螺丝	C1018	2
2	51302760	金属盖	AL5052	1
3	50906170	螺丝	C1018	2
4	50601430	弹簧	SWPC	2
5	50906180	螺丝	C1018	4
6	52000280	垫片	Steel	2
7	50601440	弹簧	SWPC	4
8	52000020	垫片	Steel	4
9	51801340	铆柱	SUS	2
10	LE10200002	Fan DF121020BU 反叶	PBT	1
11	50900380	螺丝	C1018	8
12	LE10200001	Fan DF121020BU 正叶	PBT	1
13	50809220	铜+铝散热片	CU+AL	1
14	51900110	扣环	SK7	6

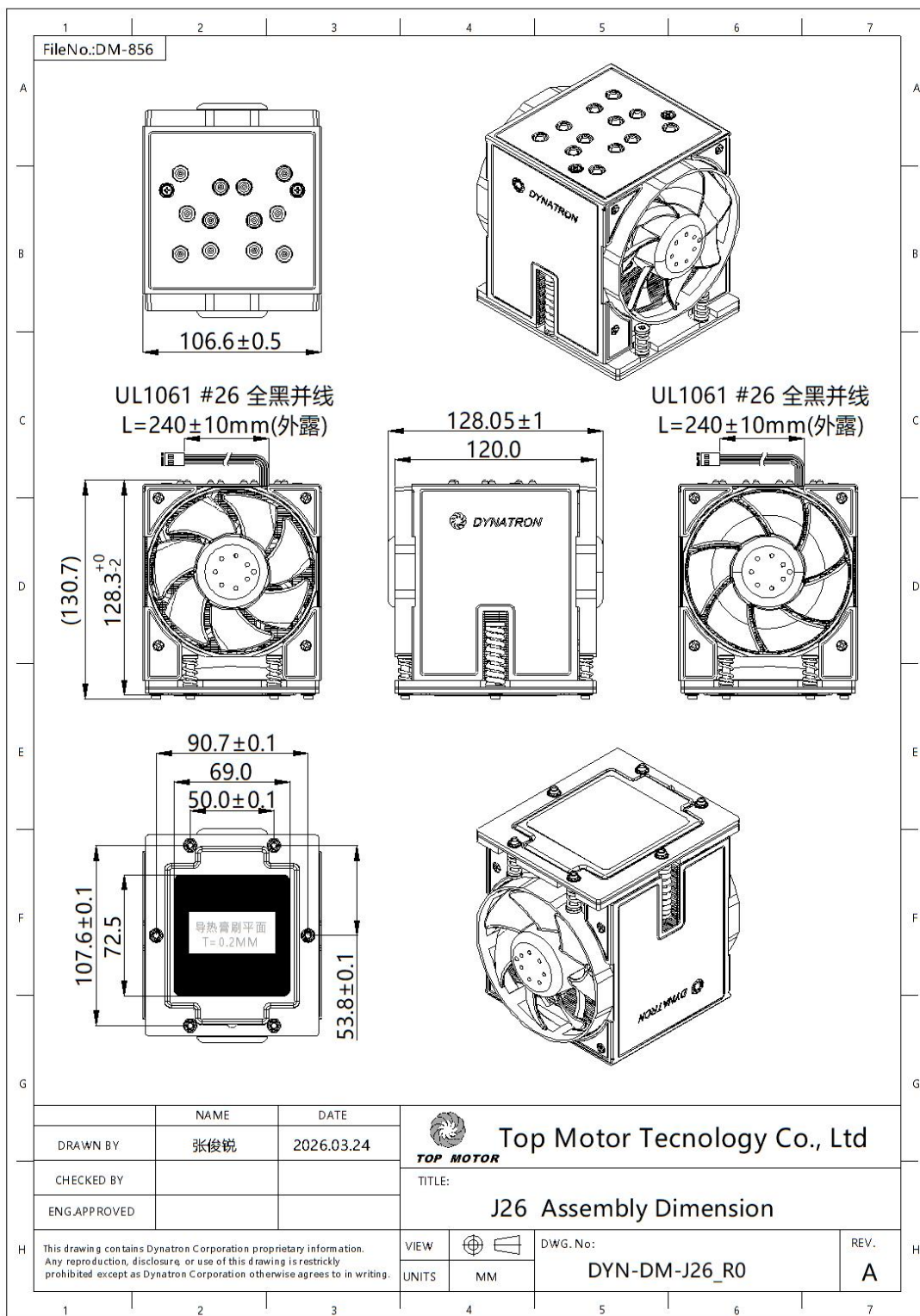
NAME	DATE	Top Motor Technology Co.,Ltd
DRAWN 张俊锐	2026.03.24	TITLE: Exploded Assembly Drawing J26
CHECKED		
ENG. APPR.		
COMMENTS: N/A	DWG. No: DYN-EP-J26_R0	REV A



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6.2.Product Dimension





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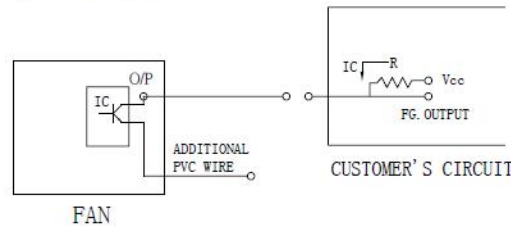
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6.3. Frequency Generator Output

FREQUENCY GENERATOR O/P:

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

Electrical schematic:



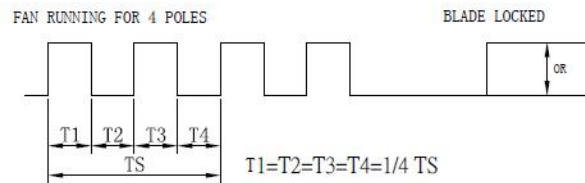
CUSTOMER'S CIRCUIT

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

I_c = 5 mA max.

$R = V/I$ (Output "R" value calculation)

• SUPPLY A WAVEFORM:



$N=R.P.M.$ (Rotation speed will be different for various models

L/M/H/HH/VH/SH)

$TS=60/N$ (Sec)

* Voltage level after blade locked

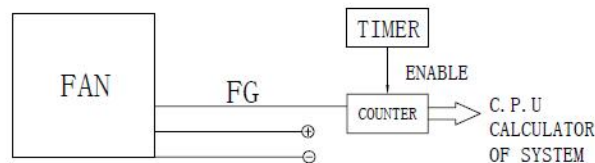
• OUTPUT LEVEL:

High = V_{cc} 10%

Low = 0~0.5V

I_c = 5 mA max.

• APPLICATION:



• FUNCTIONS:

By means of waveform & customer's design, schematic can reach alarm function, either in the form of buzzing or LED flashing.

Adjust rotation speed.

When power supply output voltage level decreases, it will result in the lowering of fan rotation speed. The irregular situation will be controlled by using FG. O/P through P/S circuit to increase the output voltage and result in a stable rotation speed.



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6.4 Electrical Specifications for pwm production

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Electrical Specifications for PWM production

Voltage

Fan operating voltage shall be within the range 12V $\pm$ 1.2V.

Current

Peak fan current draw during start-up operation(with 13.2V applied,with fan operating in the free stream condition)shall not exceed 2.0 A.

Fan current spike during start-up operation(with 13.2V applied with fan operating in the free stream condition)shall be allowed to exceed 1.0 A for a duration of no greater than 1.0 sec.

Tachometer Output Signal

Fan shall provide tachometer output signal with the following characteristics:

- * Two pulses per revolution
- * Open-collector or open-drain type output
- * Motherboard will have a pull up to 12V, maximum 13.2V

PWM Control Input Signal

The following requirements are measured at the PWM(control) pin of the fan cable

connector:PWM Frequency:Target frequency 25kHz.

acceptable operational range 21 kHz to 28 KHz

Maximum voltage for logic low:VIL=0.8V

Absolute maximum current sourced:Imax=5mA(short circuit current)

Absolute maximum voltage level:Vmax=5.25V(open circuit voltage)

Fan Speed Control

1.1Maximum Fan Speed Requirements

The maximum fan speed shall be specified for the fan model by the vendor and correspond to 100% duty cycle PWM signal input.

1.2 Minimum Fan Speed Requirements

The vendor shall specify the minimum RPM and the corresponding PWM duty cycle. This specified minimum RPM shall be 30% of maximum RPM or less. The fan shall be able to start and run at this RPM. To allow a lower specified minimum RPM, it is acceptable to provide a higher PWM duty cycle to the fan motor for a short period of time for startup conditions. This pulse should not exceed 30% maximum RPM and should last no longer than 2 seconds.



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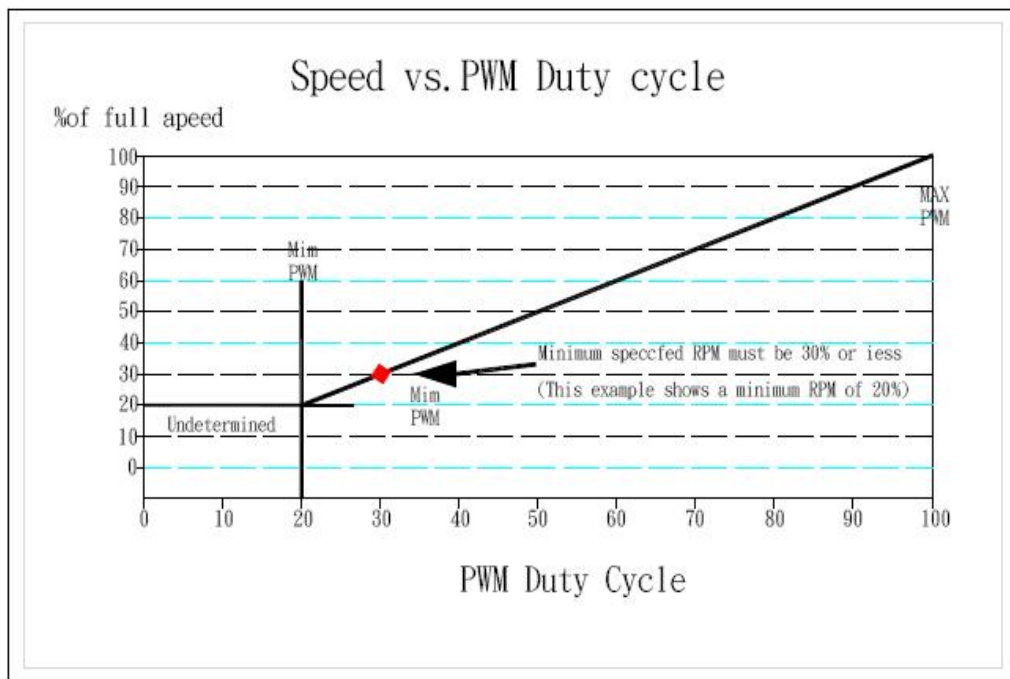
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1.3 Fan Speed Response PWM Control Input Signal

The PWM input shall be delivered to the fan through the control signal on Pin4. Fan speed response to this signal shall be a continuous and monotonic of the duty cycle of the signal, from 100% to the minimum specified RPM. The fan RPM (as a percentage of maximum RPM) should match the PWM duty cycle within $\pm 10\%$. If no control signal is present the fan shall operate at maximum RPM.

Figure 1 Fan speed Response to PWM Control input Signal



1.4 Operation Below Minimum RPM

For all duty cycles less than the minimum duty cycle, the RPM shall not be greater than the minimum RPM. The following graphs and definitions show three recommended solutions to handle PWM duty cycles that are less than the minimum operational PRM, as a percentage of maximum.

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