



TITAN
SERIES

B1793 AC Blower

Innovation in Motion





OVERVIEW

Pelonis Technologies' innovative B1793 Titan Series AC blower is uniquely engineered for rugged performance to meet the needs of today's demanding applications.

HEAT RESISTANT DESIGN

The B1793 Titan Series AC blower has a proprietary engineered aluminum enclosure that acts as a heat sink to dissipate heat more effectively, resulting in a cooler surface temperature and reduced wear on the internal components. This unique patent pending enclosure design ensures added thermal protection and greater long-term reliability.

SOFT START OPERATION

The B1793 Titan Series AC Blower includes "soft start" operation whereby startup occurs gradually until the desired speed is achieved. This gradual speed increase reduces electrical surges that result from high inrush current and enables the blower to operate quieter and to achieve a longer operating life than competitive cooling products.

UNIVERSAL DUAL PWM SPEED CONTROLS

The B1793 Titan Series AC Blower includes a built-in dual PWM speed control system designed to take advantage of different application circuit designs. The user can select from either DC voltage signal control (VPWM) isolated operation or pulse signal control (PPWM) isolated operation by connecting the appropriate wires. The blower's maximum speed can also be adjusted via an on-board variable speed resistor that is easily accessed on the external housing.

ADDED PERFORMANCE

The B1793 Titan Series AC Blower also includes an isolated open collector tachometer (frequency generator) that monitors the running speed and locked rotor protection to ensure that the blower will automatically restart if the motor is released from a locked condition.

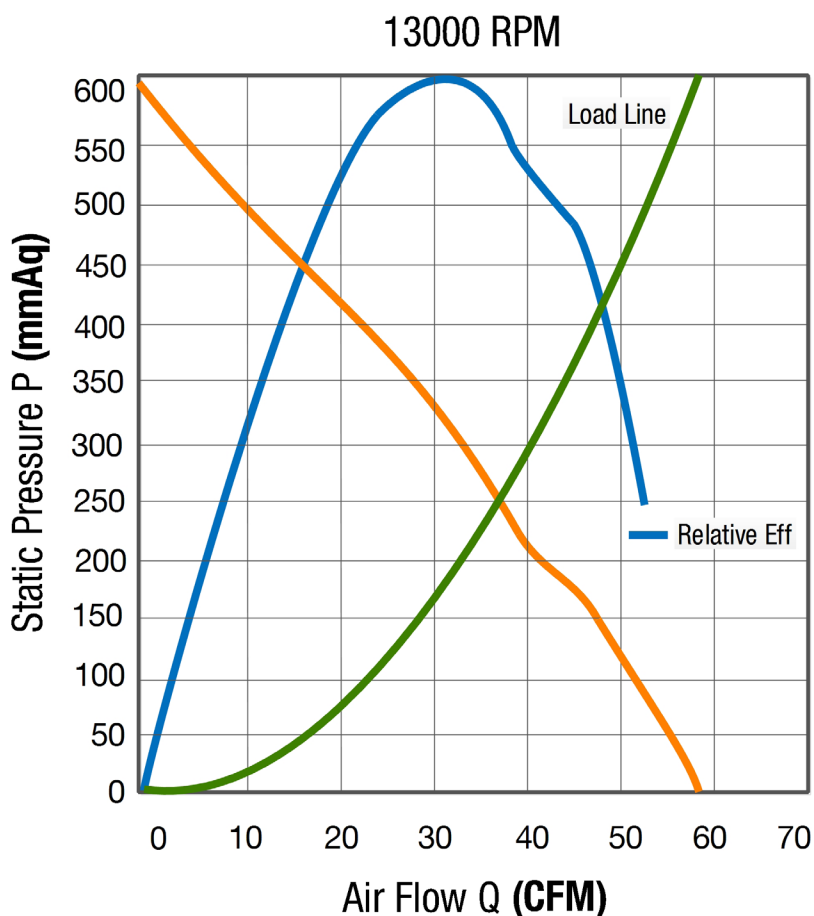
The B1793 Titan Series AC Blower is an ideal cooling system for a variety of applications including medical equipment, automotive, industrial products, and other applications that require a compact blower with high performance and long-term reliability.

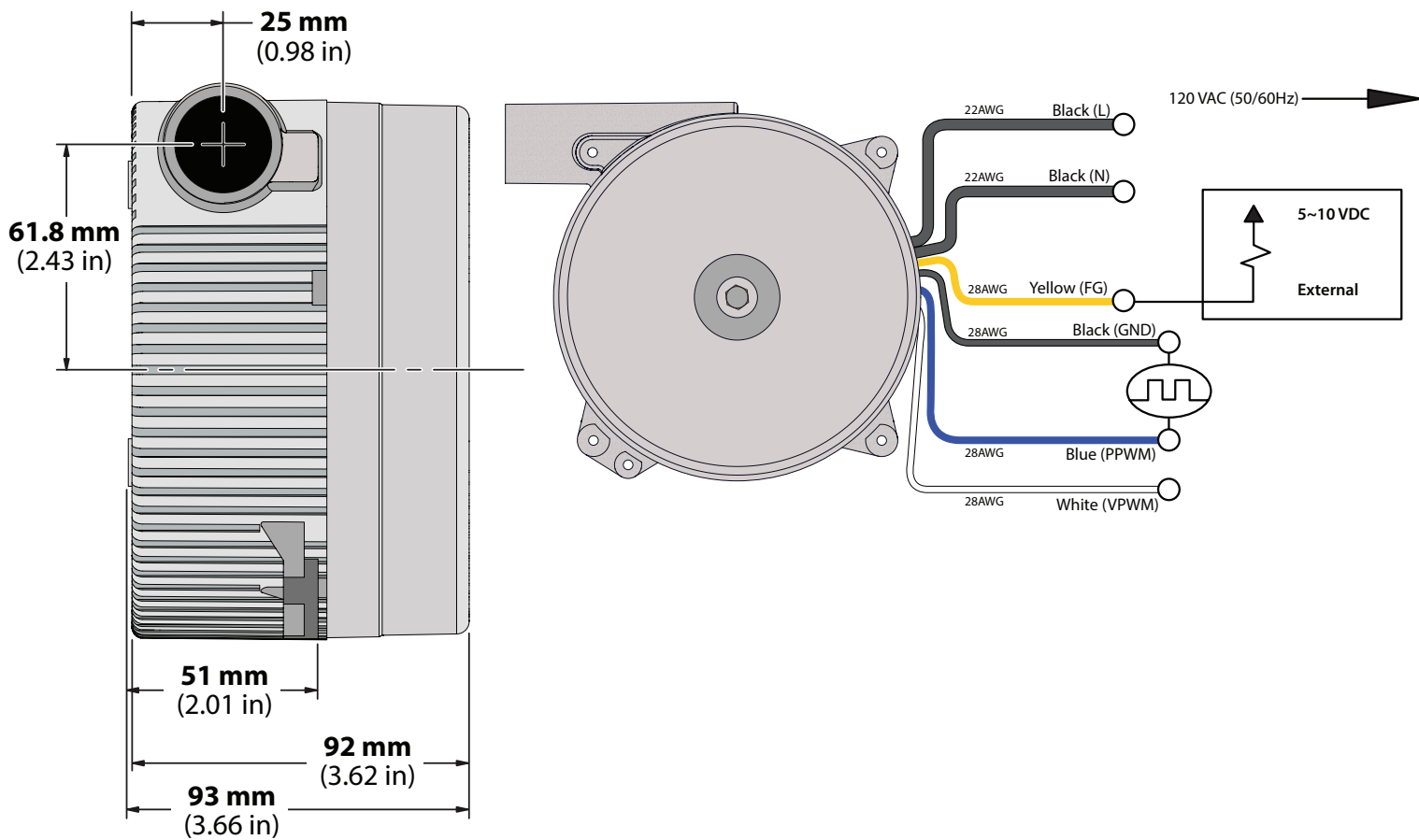
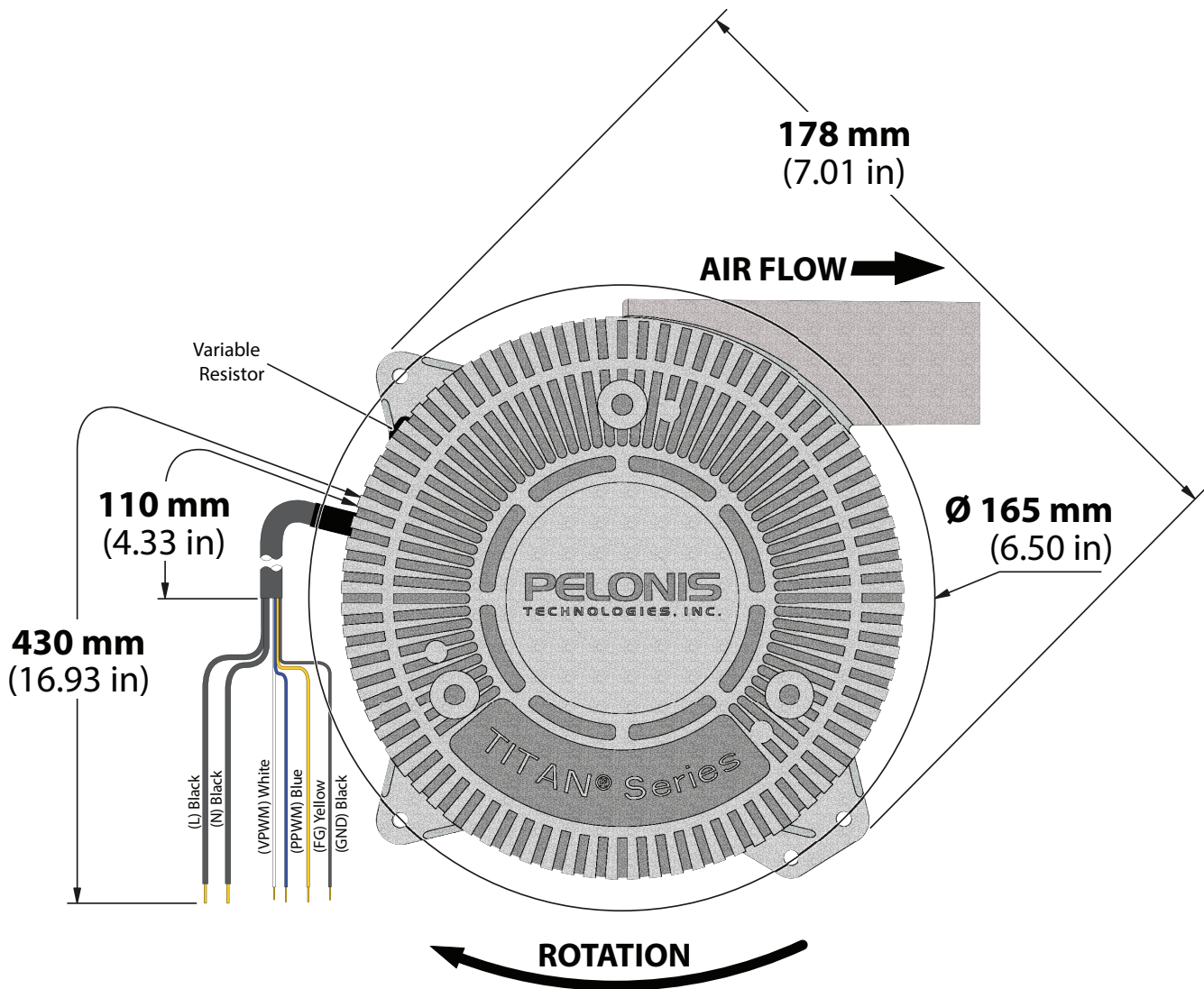
B1793 TITAN® Series AC Blower

- 120V/60Hz
- Ball Bearings
- High Static Pressure
- Heat Resistant Aluminum Enclosure
- Dual Speed Controls (PWM)
- Tachometer (Frequency Generator)
- “Soft Start” Operation
- Variable Resistor Speed Adjustment
- Long Operating Life
- ETL Listed



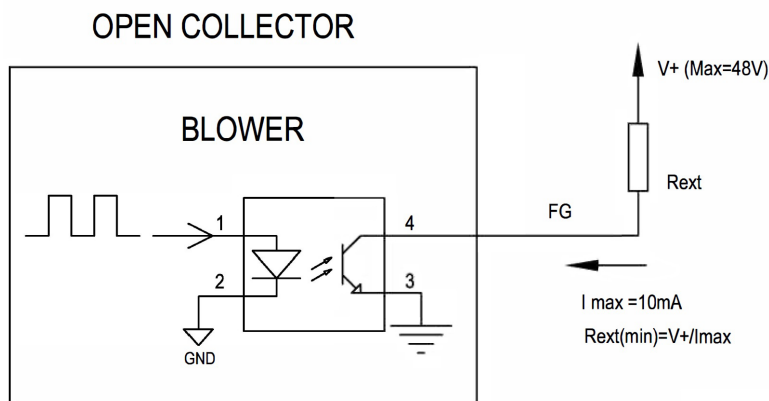
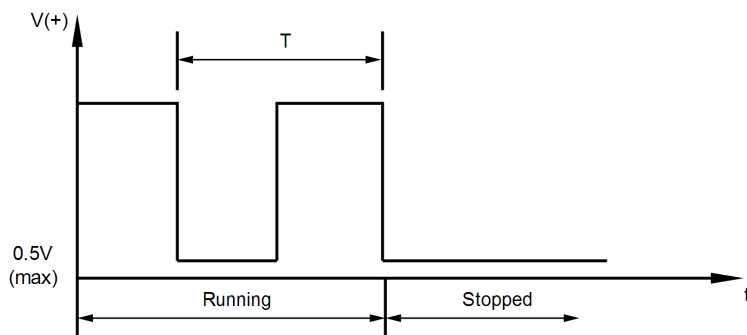
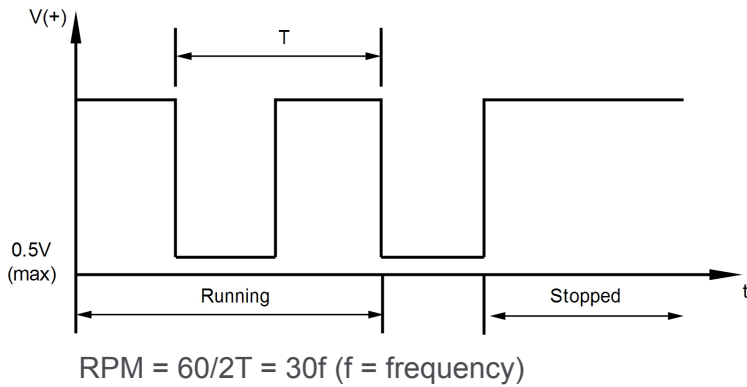
Model Number	V/Hz	Range (V)	A	W	RPM	CFM	m ³ /min	mmAq	inH ₂ O	dBA
B1793Y11BALA3d-3	120/60	90~135	4.0	325	13000	59.4	1.68	597	23.50	81





TACHOMETER (FG) - OPEN COLLECTOR OUTPUT

The Frequency Generator (Tachometer) (FG) Control is an open collector output type that provides a square wave signal if this open collector output is connected to a "PULL UP" resistor and is powered by the power supply voltage which is compatible with the input of the reading device (such as TTL input of the computer, etc.). The maximum collector voltage may be up to 48V DC and the maximum collector current is 10mA. The power supply of the reading device must have the same ground potential as the blower. The Frequency Generator Control is an external YELLOW wire.



PPWM: Pulse Width Modulation (PWM)

Pulse height: H=5~10V
L<0.5V

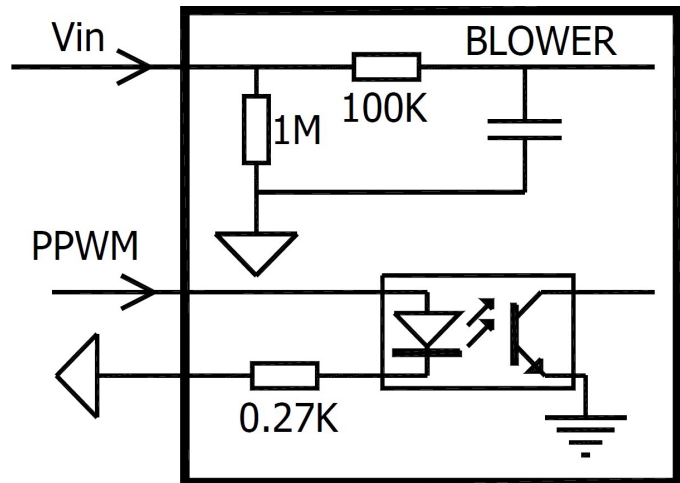
PWM frequency range 30HZ~30KHZ

VPWM: DC Voltage Signal Control Input

0~5VDC input -->Control 0~100% speed.

VPWM - Input Signal of 10V PWM pulse height.

0~50% modulation -->Control 0~100% speed.



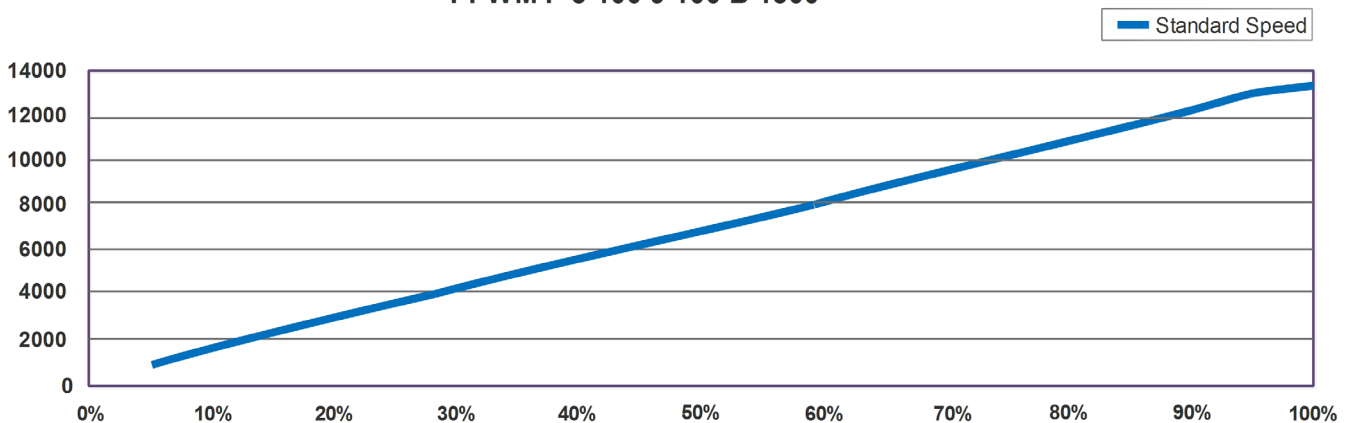
VARIABLE RESISTOR FOR MAXIMUM SPEED ADJUSTMENT

The blower housing includes a variable resistor that is located near the wire exit area and is covered by a removable black rubber plug. The variable resistor can be turned gently with a small screw driver in order to adjust the maximum speed limit. The blower is set to its maximum speed of 13000 RPM and adjustment to alternate maximum speed can be set by the available external control inputs.

PWM SPEED CONTROL

The Pulse Width Modulation Signal (PPWM) Control adjusts the speed by applying a pulse width modulated signal whose frequency may be in the range of 30 Hz to 30 KHz and the maximum pulse height "HIGH" may be from 5V to 10V. The maximum pulse height "LOW" is 0.5V. The blower speed will vary linearly and is proportional to the % change of the Duty Cycle value, corresponding to the same % change of the maximum speed. The PPWM Control Input is applied to the external BLUE wire.

PPWM P 5 100 9 100 B 1300

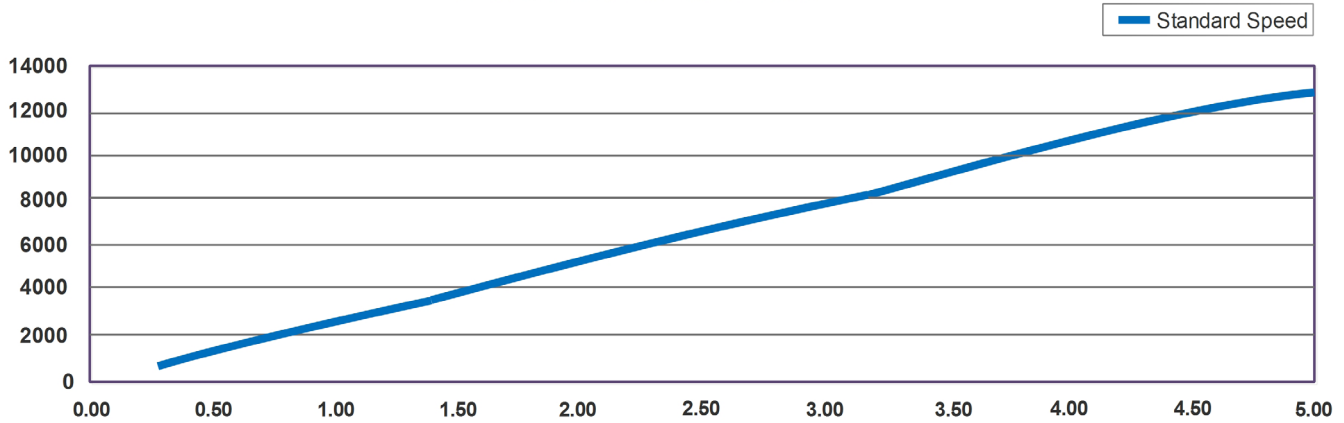


PPWM Input	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Standard Speed	1150	1700	2424	3062	3701	4339	4977	5743	6254	6892	7530	8290	8935	9573	10210	10840	11480	12220	12890	13000

VPWM SPEED CONTROL

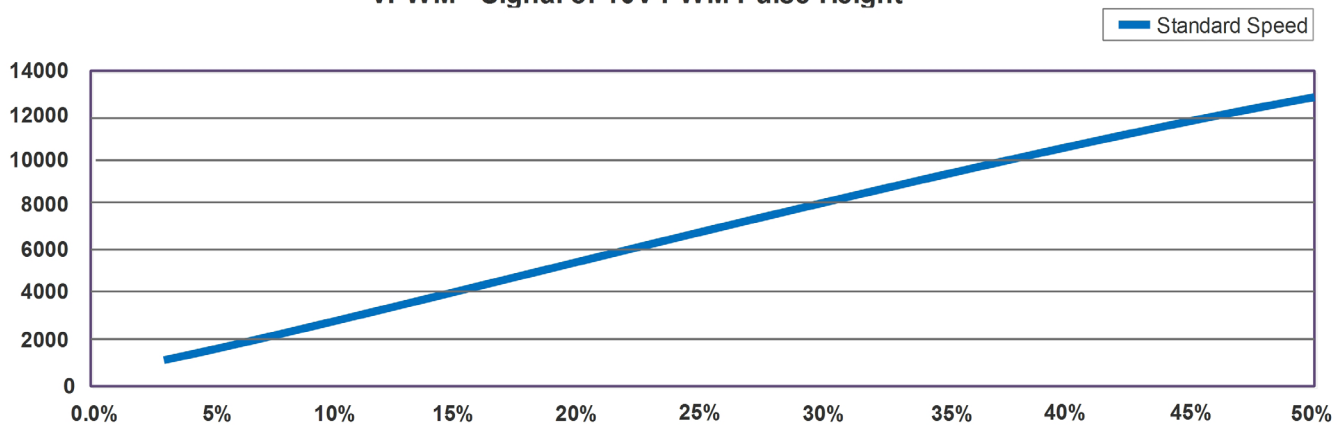
The DC Voltage Signal (VPWM) Control adjusts the speed by applying an external DC Voltage signal. This voltage input “Vin” may have any value from 0.3V to 5VDC (at Vin=0, the blower stops). The blower speed will vary linearly and is proportional to the % change of the “Vin” value, corresponding to the same % change of the maximum speed. The VPWM Control is applied to the external WHITE wire.

VPWM V:0.3 5 9 100 B 1300



VPWM Input	0.30	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00
Standard Speed	1150	1530	2296	2935	3445	4084	4850	5488	6126	6892	7530	8041	8679	9445	10080	10720	11230	11990	12500	13000

VPWM - Signal of 10V PWM Pulse Height



VPWM - Signal of 10V PWM pulse height.
0~50% modulation --> Control 0~100% speed

Signal of 10V PWM Pulse Height Input	3.0%	5.0%	7.5%	10.0%	12.5%	15.0%	17.5%	20.0%	22.5%	25.0%	27.5%	30.0%	32.5%	35.0%	37.5%	40.0%	42.5%	45.0%	47.5%	50.0%
Standard Speed	1150	1530	2169	2697	3445	4084	4850	5488	6126	6892	7530	8041	8679	9445	10080	10720	11230	11990	12500	13000

Electrical Specifications

Model Number	: B1793Y11BALA3d-3
Product Code	: A801004400
Rated Voltage/Frequency	: 120V/60Hz; measured by a multimeter with +/- 1% error
Operating Voltage	: 90~135 VAC; measured by a multimeter with +/- 1% error
Starting Voltage	: 90 VAC @25°C switching power ON/OFF
Rated Speed	: 13000 RPM (+/-10%); average reading, 5min after power up
Input Current	: 4.0A (+/-10%) at rated voltage, in free air
Input Power	: 325W (+/-10%) at rated voltage, in free air
Airflow	: 59.4CFM/1.68m ³ /min (+/- 10%) at rated voltage and zero static pressure
Static Pressure	: 597 mmAq/23.50in-H ₂ O(+/-10%) at rated voltage and zero airflow
Operating Temperature	: -10°C ~ +45°C at 45% ~ 65% humidity
Storage Temperature	: -40°C ~ +90°C; after 100 hrs storage, keep for 24 hrs at 23~25°C. The product must maintain its original specifications.
Direction of Air Discharge	: Air over struts
Insulation Resistance	: > 10MΩ at 500 VDC between frame and (+/-) terminals.
Dielectric Strength	: 1800VAC/1 sec/1mA; Maximum 1mA between power leads and frame.
Acoustical Noise	: 81 dBA Max at 1m/76 dBA (11,300 RPM) at rated voltage, in free air (not boxed). Background noise 16.8dB(A), measured by 1 microphone placed at a distance of one meter from the intake and weighted (B&K equipment).

Mechanical Specifications

Dimensions	: 178 x 93mm (7.01 x 3.66in)
Frame	: Aluminum
Blower Blade	: Aluminum
Lead Wires	: UL1015 22AWG Black (L), Black (N); UL3239 28 AWG Blue (PPWM), Yellow (FG), Black (-), White (VPWM)
Bearing System	: Ball Bearing
Weight	: 1921g (4.2lbs)

Test Conditions

Vibration	: In minimum packaging condition, blower motor withstands 0.2mm movement of 55 Hz vibration for 30 minutes each towards: up-down, right-left and back-forth
Drop Test	: In minimum packaging condition, motor withstands each one-drop of three faces from 30cm distance high onto wooden board of 10mm thickness.
Life Expectancy	: Minimum 50,000 hrs at 25°C, 65% R.H. at rated voltage. The life is defined as the time duration until the blower motor speed is decreased more than 30% compared to its initial speed.

Protection

Locked Rotor Protection	: Blower will automatically restart in maximum 4 seconds after motor is released from locked condition.
Polarity Protection	: For DC inputs - No damage if positive and negative leads are reversed under maximum operating voltage conditions.
Weather Proofing	: Stator, PCB, and coils are protected against normal humidity.