

# ATX LED

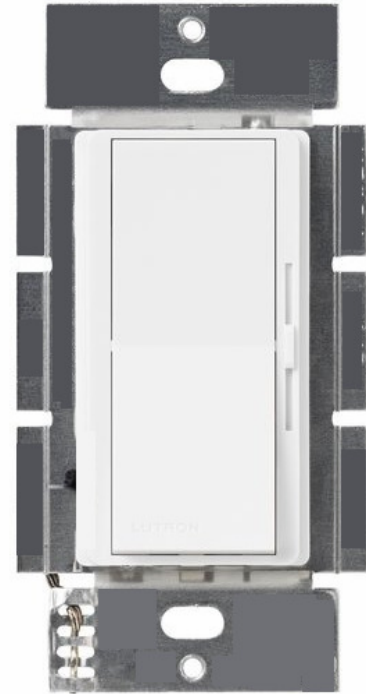
100% DC low voltage

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<http://atx-led.com>

## AL-WS-Bath/Fan

### Decorator style Switch/Driver

### LED and Fan combo



#### Product Description - AL-Bath/Fan combo

This switch and fan combo enables low voltage control of humid areas – the fan will exhaust the air, and the light illuminates

Various fan specifications are supported, for CFM and depth and duct diameter

Various Switch options are provided, with timing and speed controls available.

The wall switch operates just like any standard residential light switch – however it takes 24-51v DC instead of 120VAC, and directly drives up to 28 watts of LED bulbs and a 12 watt Fan. This Decorator style switch in a standard residential style outline fits into any home, looks like any switch yet meets NEC article 411 for Low Voltage lighting.

For Fan control - a simple 2 wire link with AWG24 or better to a simple UL listed switch allows the fan to be controlled by the user. Any single pole switch found at Home Depot can be used, or the AL-WS-M momentary switch can be used for advanced timer controls.

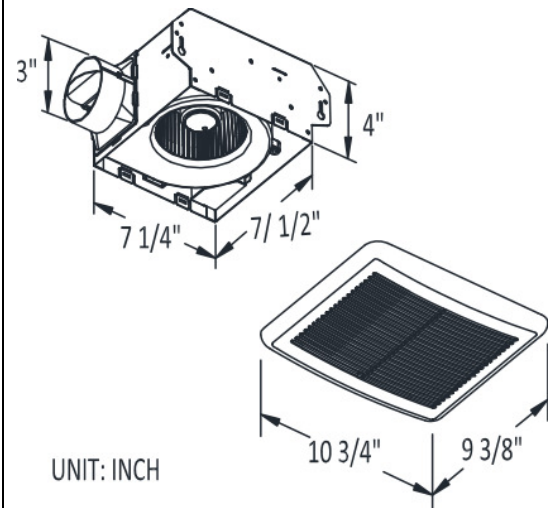
Stand alone it operates as a simple switch for 1 strings of LED's and 1 fan. Use AWG 16 or 18 to bring 48v ( or 24 to 52 volts ) from a central power supply over to the switch, then use AWG 20 to connect to your LED and Fan – no crimping tools are required to wire this device.

A proven rocker switch and brightness slider leverages mass production of Decorator switches, now for low voltage applications – a casual user requires no training, no App to use this switch. Perfect, flicker free dimming from off to 0.1% to 100%. No network setup is required.

To enable Home / Business automation – the AL-WS-DR2 includes a DALI opto isolated serial bidirectional port for remote and voice control. Use the AL-DALI-Pi Hub to connect to Alexa or Google home voice control. The DALI protocol is supported, with automatic addressing. Use low cost wire in uncomplicated topology to implement remote management. Power and DALI have in and out connectors to avoid wire nuts.

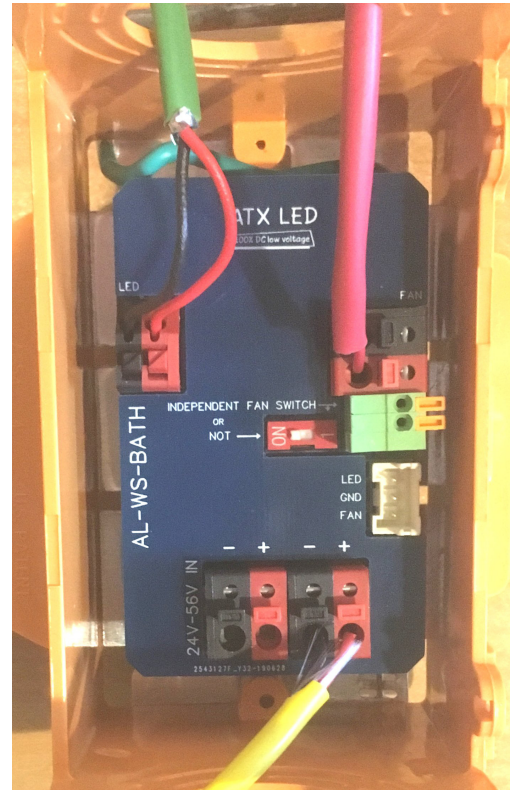
Connect 48 volt strip lights for 30 watts installations, 24 volt strip lights up to 15 watts.

#### Exhaust Fan



## Switch Specifications

Power source and Pass Thru	Spring loaded connectors ( 2 pairs ) for AWG 16-20 wire
LED constant current output	660 mA with dimming to 30 mA (B) or 3 mA Spring loaded connectors ( 2 pairs )
FAN output	12 volts, 1 amp with speed control to 7 volts
Input voltage range	24v to 52 volts ( power for LEDs)
Standby power consumption	50 milliwatts
Conversion efficiency	Over 95%
Protection	Reverse protection and static protection
Operating Temperature	0°C ~ 50°C
Size	108H (metal) 70H x 34 D x 42 W mm
Dimming	100% to 0.5% ( 5% B)
FCC and interference	All outputs are RF filtered for minimal interference, FCC compliance tested
Maximum output voltage	Input minus 4 volts
Minimum output voltage	6 volts, self calibrating
Strip LED support ( CV Mode)	Autodetect 24v CV strips
Protection	Short Circuit, Overvoltage, hot swap – you can unplug and connect LEDs with power applied. Detects and displays user errors
User Error tolerant	
DALI interface	Opto Coupled AWG 18-24 gauge wire spring fit
Individual, group and scene support ( Optional)	short and long addresses 16 to 24 volts 2 mA
N-Way input	Simple contact for Fan control see "Software N-Way Operations"
LED output A	Top Left
LED / PIR / Fan output B	Top Right
FAN Timer	0 to 90 minutes – using DALI commands

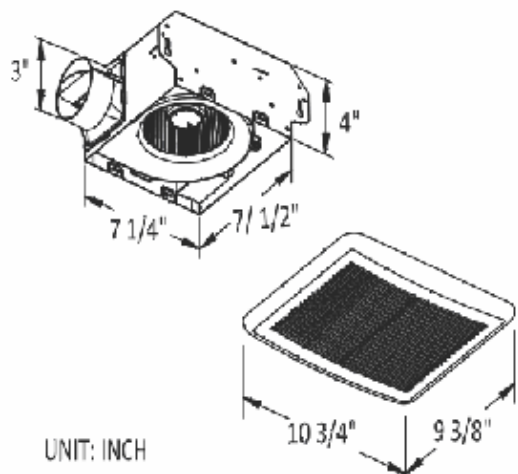


## Powering the AL-WS-BATH

Power the switch via the Power input connectors, 48 to 52v is recommended. You can feed from the input to the next switch up to 2 amps.

## Recommended ETL listed LED's

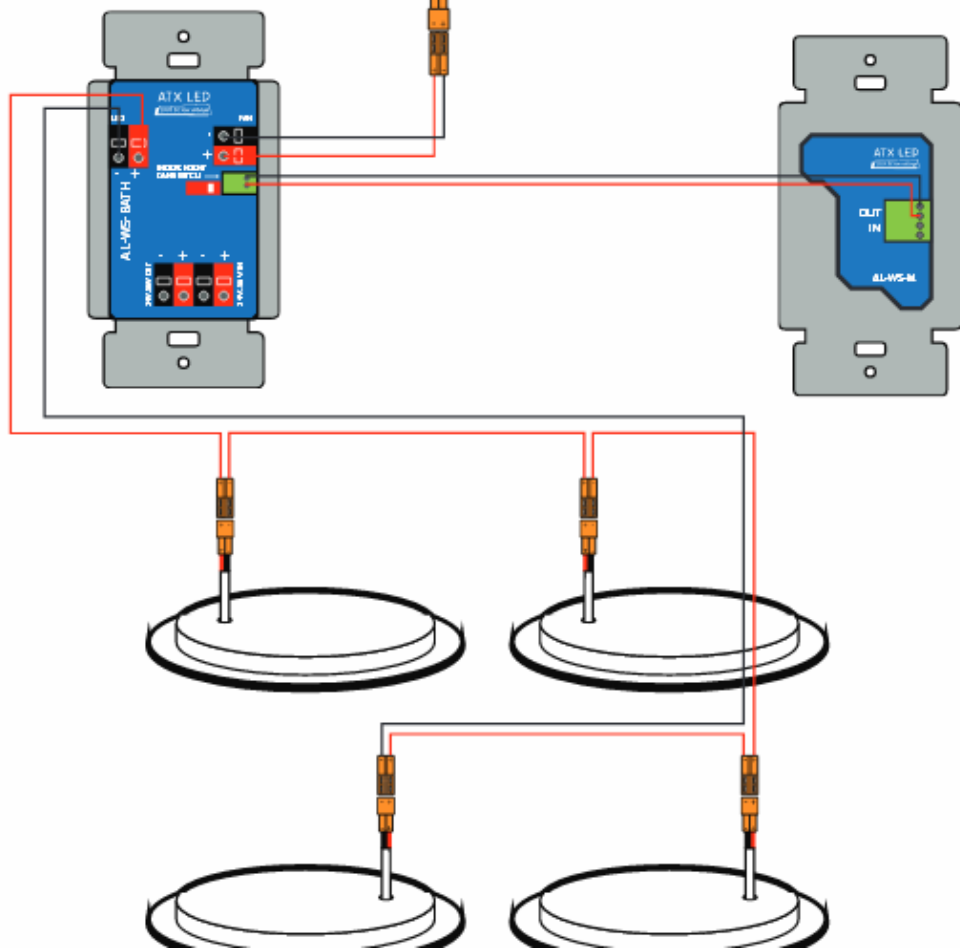
LED rated watts	Model	Size inches	LED rated mA	Max Count	Total power output Watts	Wiring method
6	P023R6-3000K	4	660 mA	5	30	Series
6	P023R6-3500K	4	660 mA	5	30	Series
12	P023R11	6	660 mA	5	30	Series
6	ATX-E26	E26	660 mA	5	30	Series
6	ATX-E12	E12	440 mA	7	30	Series
3	ATX-E26-48v	E26	120mA	5	30	Series



UNIT: INCH

AL-WS-DR2

AL-WS-M



Optional remote switch can be used as a fan timer.

# Exhaust Fan – ATX FAN 12v

## Description

Low noise ceiling/wall mount ventilating fan with super low profile, rated for continuous running. It uses the SLM70 assembly which is ENERGY STAR® qualified and is HVI, UL, and cUL certified, and can be used to comply with ASHRAE 62.2 (local and whole building intermittent operation). The adaptation to 12v is pending UL.

## DC Motor/Blower

- Working voltage 12Vdc, operating voltage 8~12Vdc
- Insulation strength 10M Ohm(Min.)
- Dielectric strength 700VAc 60Hz
- Start-up inrush current limited to 240 mA non-inductive load, steps up to 1 amp after 300 mS
- Built in soft start function
- Motor equipped with thermal cutoff fuse
- Locked rotor protection, powers OFF when impeller is locked abnormally
- Removable with permanently lubricated plug in motor
- DC brushless motor engineered to run continuously
- Built in polarity and overvoltage protection

## Housing

- Galvanized steel body
- Detachable 3" diameter duct adapter

## Ordering Information

Control	50 cfm slim	70 cfm slim	80 cfm	100 cfm slim	100 cfm
Wall Switch	3 inch	3 inch	4 inch	3 inch	4 inch
AL-WS-DR2	AL-FF-50D	AL-FF-70D	AL-FF-80D	AL-FF-100SD	AL-FF-100D
AL-WS-DR2C	AL-FF-50	AL-FF-70	AL-FF-80	AL-FF-100S	AL-FF-100
AL-WS-Bath	AL-FF-50B	AL-FF-70B	AL-FF-80B	AL-FF-100SB	AL-FF-100B

# Series LED wiring

## LED series Wiring



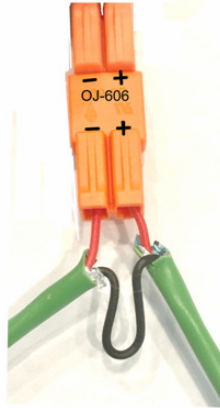
OJ-606 Connector



Right to DR2 switch  
Left to next LED

ATX LEI

100% DC low voltage



## The LEDs are wired in series

The simple strip and poke OJ-606 connectors are easy to install in ceilings.

If you only cut the Red wire – you can save time and work by wiring as shown at left.

From 1 to 5 LEDs can be connected on each side.

Note: for 6 watt LEDs:

- a) 5 in series at 660 mA / 51v
- b) 4 in series at 660 mA / 48v

# Other Options – built in timer switches

## AL-WS-DR2 and AL-WS-DR2C Operation

### Local Fan Controls

Fan operation supports two types of switches, and also operation without a fan switch.

#### For On/Off type switches (not momentary)

- A) Manual. In this mode – leaving the fan switch off keeps the fan off. You can turn the fan on/off anytime by turning the switch on or off. It will turn on immediately and stay on 10 minutes after the light is turned off. Turn the fan switch off to return to manual mode.
- B) Timer. If the fan switch is left on, then each time the light is turned on, after 90 seconds the fan will turn on and stay on for 10 minutes and turn off automatically.

#### For momentary switches

- A) Press to start the fan: each press adds 5 minutes run time, enables automatic operation
- B) Press long to stop: press for 4 seconds and release to stop the fan, disables automatic operation
- C) Automatic operation: Each time the light is turned on, after 90 seconds the fan will turn on and stay on for 10 minutes and turn off automatically. Press for 4 seconds and release to stop the fan now and exit automatic operation.

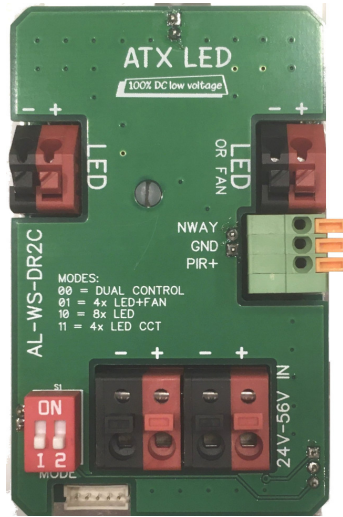
### DALI Fan control Programming

Intended for bathroom and utility fans, the Left output can be a dimmable light, the main switch and DALI control the light. We introduce a timer function. A delay time between Light on and Fan on is defined, A Hold time of the Fan on after the light goes off is defined. An idle speed can be defined for make up air, and the maximum speed can be defined to control noise.

Memory	Function	Value	Default	Scale
0:15	N-Way Mode	2 – Use N-Way as the Fan On/Off switch		
5:9	Driver mode	2 – Enable 12v fan operation		
5:22	Fan Idle	Sets the speed of the fan when it is 'off'	0	0-254
5:21	Delay before ON	Seconds x 4	90 seconds	0 – 1020
5:20	Hold-ON	Minutes	10 minutes	0 - 254
5:23	Fan Operate	Sets the speed of the fan when it is 'on'	254	50-254

# AL-WS-DR2C Operation and Installation

## Setting Operational Modes



By default – the AL-WS-DR2C or DR2L operate stand alone – no WiFi connection is required. For up to 4 standard LEDs with 660 mA each

The device is factory calibrated for operation. After power up – you will see a 2 second ON time with the lights at a very low dim level while it learns the capability of the attached LEDs in your installation. After that phase – the result is stored in on-board EEprom and will be updated for temperature and aging changes over time. You can force the device to factory defaults from the switch front if needed ( see table below)

### Operation setup – LED + FAN

Two DIP switches select the 4 operating modes – set 1 OFF and 2 ON for LED plus Fan. In this mode, the main switch controls the LED, and the external switch ( if connected ) controls the FAN.



MODEL SLM70-LVDC

(70 CFM)



3" Duct (Standard):  
70 CFM/2.0 Sones @ 0.1" SP  
54 CFM/1.5 Sones @ 0.25" SP



**Description**

Low noise ceiling/wall mount ventilating fan with super low profile, rated for continuous running. ENERGY STAR® qualified. It is HVI, UL, and cUL certified, and can be used to comply with ASHRAE 62.2 (local and whole building intermittent operation).

**DC Motor/Blower**

- Working voltage 12Vdc, operating voltage 8~12Vdc
- Insulation strength 10M Ohm(Min.)
- Dielectric strength 700Vac 60Hz
- Start-up inrush current 22A
- Built-in soft start function
- Motor equipped with thermal cutoff fuse
- Locked rotor protection, powers OFF when impeller is locked abnormally
- Removable with permanently lubricated plug-in motor
- DC brushless motor engineered to run continuously
- No polarity protection and current fuse

**Housing**

- Galvanized steel body
  - Detachable 3" diameter duct adapter
  - Built-in backdraft damper
  - Wiring connector type
- Brand: Eby Optoelectronic Technology Co., Ltd  
Model number: OJ-606

**Grille**

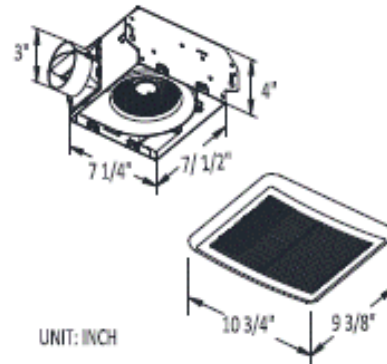
- Attaches directly to housing with torsion springs

**Warranty**

- 3-Year limited warranty

**TYPICAL SPECIFICATION**

Ventilation fan shall be Delta Breez model SLM70-LVDC; ENERGY STAR qualified with Brushless DC Motor engineered to run continuously for a minimum 70,000 hours; airflow rating of 70 CFM and loudness rating of 2.0 Sones at 0.1" static pressure as certified by the Home Ventilating Institute (HVI).

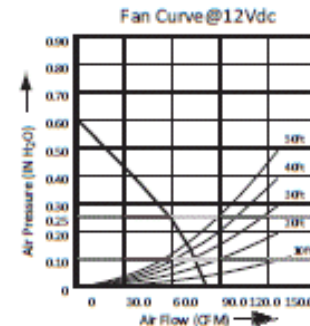


UNIT: INCH

Fan speed with different input voltage

Input Voltage (Vdc)	Fan Speed (RPM)	Current (A)
8	915	0.55
9	980	0.65
10	1055	0.70
11	1105	0.80
12	1170	0.85

BreezSlim SLM70-LVDC	3" Duct (Standard)	
Static Pressure (inches w.g.)	0.1	0.25
Air Flow (CFM)	70	54
Sones	2.0	1.5
Current (Amps)	1.0 MAX. (0.85 TYP.)	
Working Voltage (Vdc)	12	



Model	Quantity	Comments	Project:
			Location:
			Architect:
			Engineer:
			Contractor:
			Submitted by:
			Date:





MODEL ATX FAN 50-12v

(50 CFM)



3" Duct (Standard):  
50 CFM/1.0 Sones @ 0.1" SP  
36 CFM/1.2 Sones @ 0.25" SP



### Description

Low noise ceiling/wall mount ventilating fan with super low profile, rated for continuous running. It uses the SLM50 assembly which is ENERGY STAR® qualified, and HVI, UL, and cUL certified, and can be used to comply with ASHRAE 62.2 (local and whole building intermittent operation). The adaptation to 12v is pending UL.

### DC Motor/Blower

- Working voltage 12Vdc, operating voltage 8- 12Vdc
- Insulation strength 10M Ohm (Min.)
- Dielectric strength 700VAc 60Hz
- Start-up inrush current limited to 240 mA non-inductive load
- Built-in soft start function to preserve bearing life
- Motor equipped with thermal cutoff fuse
- Locked rotor protection, powers OFF when impeller is locked abnormally
- Removable with permanently lubricated plug-in motor
- DC brushless motor engineered to run continuously

### Housing

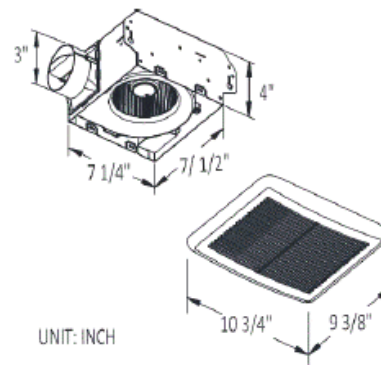
- Galvanized steel body
- Detachable 3" diameter duct adapter
- Built-in backdraft damper
- Wiring connector type  
Brand: Eby Optoelectronic Technology Co., Ltd  
Model number: OJ-606

### Grille

- Attaches directly to housing with torsion springs

### TYPICAL SPECIFICATION

Ventilation fan shall be ATXBreez model ATX50-LVDC; ENERGY STAR qualified with Brushless DC Motor engineered to run continuously for a minimum 70,000 hours; airflow rating of 50 CFM and loudness rating of 1.0 Sones at 0.1" static pressure as certified by the Home Ventilating Institute (HVI).



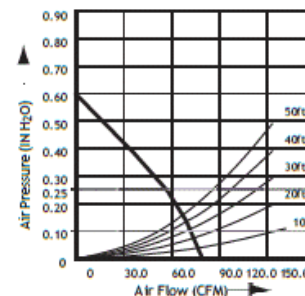
UNIT: INCH

Fan speed with different input voltage

Input Voltage (Vdc)	Fan Speed (RPM)	Current (A)
12	670	0.23
11	650	.22
10	615	.21
9	580	.2
8	550	.19
7	530	.18

BreezSlim ATX50-LVDC	3" Duct (Standard)	
Static Pressure (inches w.g.)	0.1	0.25
Air Flow (CFM)	50	36
Sones	1	1.2
Current (Amps)	.3 MAX. (0.2 TYP.)	
Working Voltage (Vdc)	12	

Fan Curve@12Vdc



Model	Quantity	Comments	Project:
			Location:
			Architect:
			Engineer:
			Contractor:
			Submitted by:
			Date:

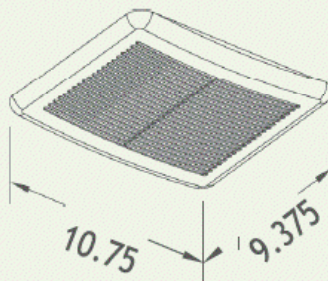
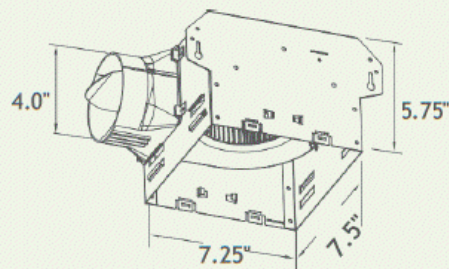


## ATX BreezIntegrity Specifications

**ATX  
LED**

**ATX  
FAN 80-  
12v  
(80 CFM)**

### Dimensions



### Description

Low noise ceiling mount ventilating fan with low profile, rated for continuous running. Fan has been awarded ENERGY STAR®. It uses the ITG80 assembly which is HVI, UL, and cUL certified, and can be used to comply with ASHRAE 62.2 (local and whole building continuous and intermittent operation). The adaptation to 12 is pending UL.

### Motor/Blower

- Power Rating of 12v 800mA
- DC Brushless motor engineered to run continuously
- Motor equipped with thermal cutoff fuse
- Removable with permanently lubricated plug-in motor

### Housing

- Galvanized steel body
- Detachable 4" diameter plastic duct adapter
- Built-in backdraft damper
- Easy installation

### Grille

- Attractive design using ABS material
- Attaches directly to housing with torsion springs

### Warranty

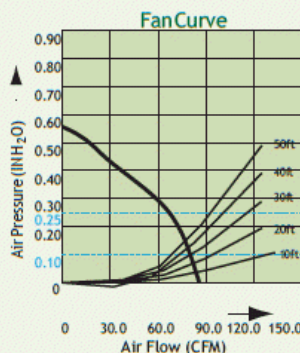
- 3-year limited warranty

### Features

- For ceiling mount only, airflow of 80CFM (±10%) and 1.3 Sones at 0.1 static pressure
- Power consumption approximately 9.5 Watts with an efficiency rating approximately 8.5CFM/Watt at 0.1 static pressure
- Duct diameter no less than 4"
- UL and cUL listed for tub/shower enclosure when used with GFCI-protected branch circuit wiring

### DC Motor Technology

- Built in soft start function to increase bearings life
- Automatically powers OFF when impeller is locked abnormally



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ATX FAN 80-12v	4" Duct (Standard)	
Static Pressure (Inches w.g.)	0.1	0.25
Air Flow (CFM)	80	68
Sones	1.3	1.4
Power Consumption (Watts)	9.5	10.3
Energy Efficiency (CFM/Watt)	8.4	6.6
Current (Amps)	1A Max	
Power Rating (V/A)	12/.8	
Project Pack Components Available ATX-A (housing) and ATX80-B (motor grille)		



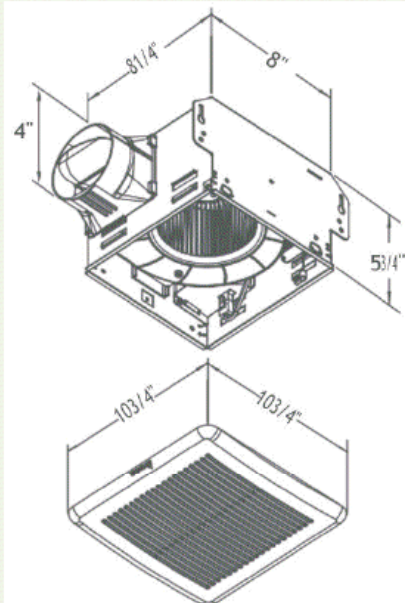


## ATX FAN 100-12v Specifications

**ATX**  
**LED**

**ATX FAN**  
**100-12v**  
**(100**  
**CFM)**

### Dimensions



Grille for Fan Only

### Description

Low noise ceiling mount ventilating fan with low profile, rated for continuous running. Fan has been awarded ENERGY STAR®. It uses the GBR100 assembly which is HVI, UL, and cUL certified, and can be used to comply with ASHRAE 62.2 (local and whole building continuous and intermittent operation). The adaptation to 12v is pending UL.

### Motor/Blower

- Power Rating of 12v 840mA (10W)
- DC Brushless motor engineered to run continuously
- Motor equipped with thermal cutoff fuse
- Removable with permanently lubricated plug-in motor

### Housing

- Galvanized steel body
- Detachable 4" diameter plastic duct adapter
- Built-in backdraft damper
- Easy installation

### Grille

- Attractive design using ABS material
- Attaches directly to housing with torsion springs

### Features

- For ceiling mount only, airflow of 100CFM (± 10%) and 1.4 Sones at 0.1 static pressure
- Power consumption approximately 10Watts with an efficiency rating approximately 7.9CFM/Watt at 0.1 static pressure
- Duct diameter no less than 4"
- UL and cUL listed for tub/shower enclosure when used with GFCI-protected branch circuit wiring

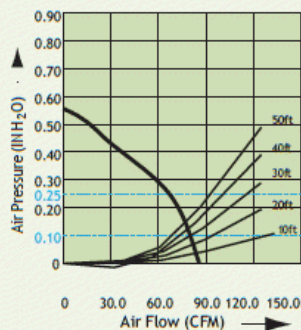
### DC Motor Technology

- Built in soft start function to increase bearings life
- Automatically powers OFF when impeller is locked abnormally

### Specifications

ATX FAN 100-12v	4" Duct (Standard)	
Static Pressure (Inches w.g.)	0.1	0.25
Air Flow (CFM)	100	77
Sones	1.4	1.5
Power Consumption (Watts)	10	11
Energy Efficiency (CFM/Watt)	7.9	5.7
Current (Amps)	1A Max	
Power Rating (V/A)	12/.84	

### FanCurve



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