# DC Fans

5, 12, 24, 48V

Orion DC Fans are designed to meet UL, cUL, TUV, VDE and CE standards. All series numbers are UL / cUL approved (E170149). Most carry European approvals. Fans not currently listed with a European agency will be submitted on customer's request at the discretion of Orion Fans management. Fans are warranted to be free of defects in material and workmanship for a period of one year from the date of delivery.

DC Part Number Construction (example: od127AP-12HTB)

Type:	Frame size: (mm)	Construction:	Voltage:	Speed:	Connection:	Bearing type:	Special Function Code:
OD	**127**	**AP**	**12**	**H**	**T**	**B**	**[ ]**
OD = DC fan	2510 = 25x10 3010 = 30x10 4010 = 40x10 4018 = 40x18 4020 = 40x20 4028 = 40x28 5010 = 50x10 5210 = 52x10 6010 = 60x10 6015 = 60x15 6020 = 60x20 6025 = 60x25 8015 = 80x15 8025 = 80x25 8032 = 80x32 9220 = 92x20 9225 = 92x25 1225 = 120x25 1232 = 120x32 1238 = 120x38 127 = 127x38 172 = 172 dia. 254 = 254 dia.	[blank] = standard UL94V-0 thermoplastic PT = standard UL94V-0 thermoplastic AP = die cast aluminum, painted black AN = die cast aluminum, unpainted SAP = 172x150x51 die cast aluminum frame, painted black SAPL = 172x150x38 die cast aluminum frame, painted black SAN = 172x150x51 die cast aluminum frame, unpainted	05 = 5VDC 12 = 12VDC 24 = 24VDC 48 = 48VDC	HH = Extra High speed H =High speed M = Medium speed L = Low speed LL = Extra low speed	T = terminal type fan [blank] = 2x 300mm lead wires	B = Ball bearing S = Sleeve bearing	[01 - 21] = Special Function Codes. A suffix after the bearing type indicates specific modifications to the fan. Alarm, tachometer, thermal control, pwm input, metal construction, custom connectors, constant speed or some combination of these options. Not all options are available on all fans. Minimums apply to special orders.

special function code

[none]	standard
01	Tachomoeter Output 5VTTL*
02	Alarm Output 5VTTL *
03	Thermistor Speed Control (hub)
04	Thermistor Speed Control (wire)
05	PWM Input
06	Dual Speed
07	Temperature Sensor
08	Tachometer* + Alarm*
09	Tachometer* + Thermistor
10	Tachometer* + PWM
11	Tachometer* + Temperature Sensor
12	Alarm* + Thermistor
13	Alarm* + PWM
14	Alarm* + Termperature Sensor
15	Tachometer* + Alarm* + PWM
16	Tachometer* + Alarm* + Thermistor
17	Extra Long Lead Wires
18	Metal Impeller
19	High Temperature
20	Conformal Coating
21	Customized
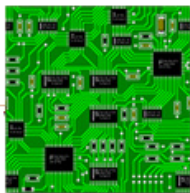
* To specify "open collector" instead of 5VTTL please add the letter "a" after the Special Function Code".

Additional suffices consisting of both numbers and letters may be applied for multiple fan modifications including numbers and / or letters.

Special function codes will not appear on the fan label unless specified by the customer.

General DC Information

Motors
Brushless DC, locked rotor and polarity protected. Auto-restart.

Dielectric Strength
1 second at 500VAC
max. leakage 500 micro Amp

Impellers & Frames
Glass-reinforced thermoplastic (UL94V-0, PBT) or
die cast aluminum

Power Connection
Terminals - push-in flat pins or
Lead Wires - 2x 300mm (12")

Bearings
Two high precision, double-sealed ball bearings (60,000 hours, L10)
or a sintered brass sleeve (30,000 hours, L10)

Options
Tachometer
Alarm
Thermal Control
Manual Speed Control
Variable Input, constant speed
Custom Assemblies

Rigel

DC Challenger
12V High speed
sleeve bearing

Contact us at 800-323-2439
or 214-340-0265
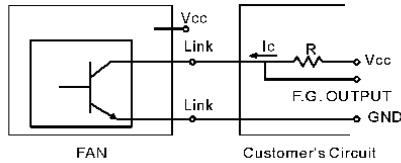WEB: www.orionfans.com
ISO9001/2000 - RoHS Compliant

Function

■ Frequency Generator

Generates a square wave out frequency equal to 2 periods per revolution for 4 poles fan and informs the user of the fan's running speed.
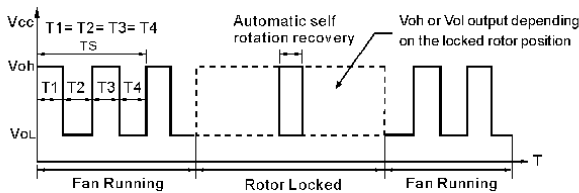
● Application 1

FAN   Customer's Circuit

Vcc=From + 5 To +28 VDC (Generally using + 12 or + 24VDC)
Ic=5 mA max.
R=V/I(Output "R" value calculation)

● Output Waveform

Fan Running   Rotor Locked   Fan Running

◆ N=R.P.M
◆ Ts=60/N(Sec)
◆ Output Level
   Voh= Vcc _ 10%
   VoL=0···0.6V
   Ic=5 mA max.

● Application 2

FAN   Customer's Circuit

Vcc=From + 5 To +28 VDC (Generally using + 12 or + 24VDC)
Ic= 5 mA max.
R (type) = 10K

● Output Waveform

Fan Running   Rotor Locked   Fan Running

◆ N=R.P.M
◆ Ts=60/N(Sec)
◆ Output Level
   Voh= 5.0V _ 0.5V
   VoL=0···0.6V
   Ic=5 mA max.

■ **Rotation detector**

Detects whether the fan is running or has stopped by generating a high or low output signal.
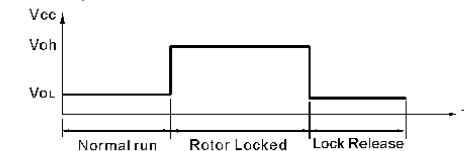
● Application 1

FAN   Customer's Circuit
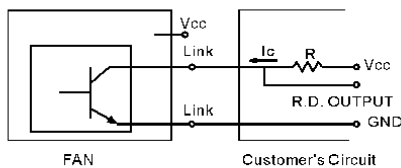
Vcc=From + 5 To +28 VDC (Generally using + 12 or + 24VDC)
Ic=2 mA max.
R=V/I(Output "R" value calculation)

● Output Waveform

Normal run   Rotor Locked   Lock Release

◆ Output Level
   Voh=Vcc _ 10%
   VoL=0···0.6V
   Icc=5 mA max.

● Application 2

FAN   Customer's Circuit

Vcc= From + 5 To +28 VDC (Generally using + 12 or + 24VDC)
Ic= 5 mA max.
R (type) = 10K

● Output Waveform

Normal run   Rotor Locked   Lock Release
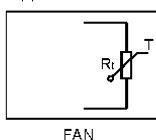
◆ Output Level
   Voh=5.0V _ 0.5V
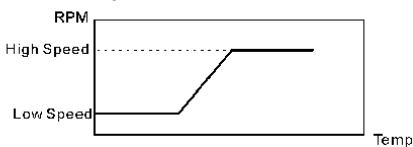   VoL=0···0.6V
   Icc=5 mA max.

■ Temperature Control

Controls the fan speed via an thermistor which changes with the temperature of the task area where the thermistor is located.
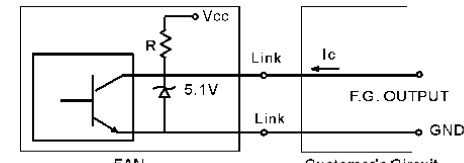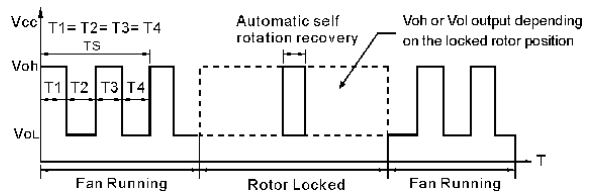
● Application

FAN

● **RPM Temperature curve**
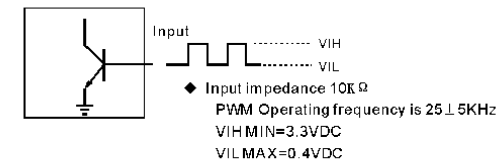

■ Pulse width modulation

Controls the fan speed automatically via an external input Pulse Width Modulation signal.

● Application

◆ Input impedance 10KΩ
   PWM Operating frequency is 25⊥5KHz
   VIH MIN=3.3VDC
   VIL MAX=0.4VDC

● RPM & Duty Cycle Curve

Contact us at 800-323-2439
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WEB: www.orionfans.com
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