SAFE 328
Avionics Cooling Fan

Installation Manual

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Record of Revisions

Revision	Date	Description	Approval
B	20060926	DRN287	J. Fiala
C	20130502	ECN3974	L. Harrison
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1.0 Introduction

This sheet describes the installation of the SAFE 328 Blower with fault detection output. It is intended for use by FAA certified repair stations to install the SAFE 328 and includes both mechanical and electrical installation information. The installer should insure that the SAFE 328 is operating according to its intended function.

1.1 Product Description

The SAFE 328 is an avionics cooling fan that provides an operating indication. When the fan is normally operating, this output is at low impedance. The output goes to high impedance whenever the RPM of the motor drops below a preset threshold, signaling the connected avionics of the reduction in cooling from the SAFE 328.

1.2 Technical Characteristics

1.2.1 Physical Characteristics

Width 1.25” Height 4.75”

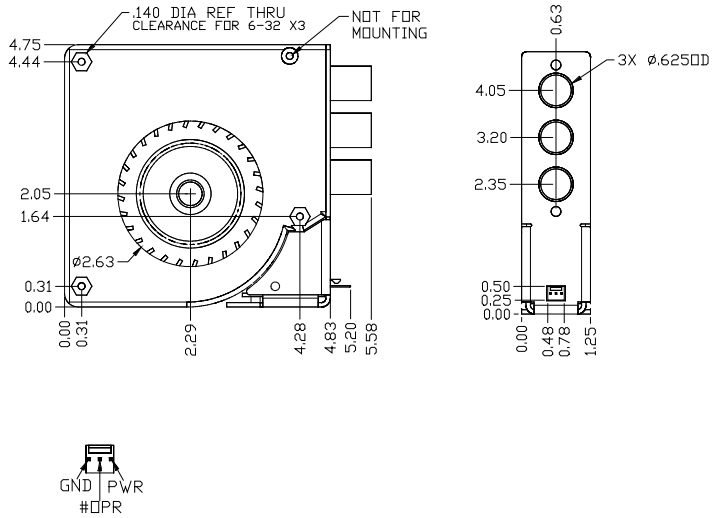

Figure 1-1
Dimensions for Serial Numbers 101 - 9999 and 20000 and Up

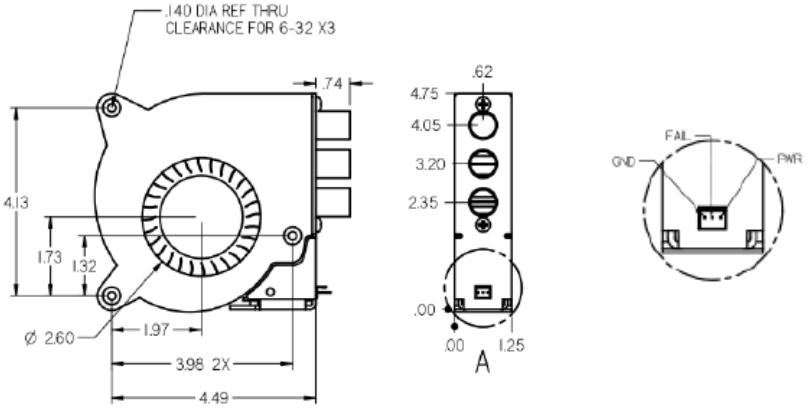

Figure 1-2
Dimensions Seraial Numbers 10001 - 19999

1.2.2 Operational Characteristics

Operating Voltage 22-31Vdc
Current Operating .400 Amps Nominal
Start-up .550 Amps
Air Flow (All Ports) 20 CFM No Static Pressure (10CFM @ .08 H2O Static Pressure)
Operating Temp -20 to +55° C
Max Operating Altitude 55,000 Feet

1.2.3 Certification

FAA-PMA PQ0894SW Diamond DA40
DO 160D [F1]BAA[S2R2U(F,B2,M)]XXXXXXZBAZA[XX]M[XXXX][XX]XX

2.0 Installation Procedures

2.1 General

The SAFE 328 is supplied with a mounting connector and four contacts. Only three contacts are required and the spare one is provided in case one is destroyed during installation. The SAFE 328 is mounted with three (3) number 6 or 8 screws. Cooling air is ducted to the device to be cooled using aircraft approved tubing. Unused ports should be capped.

2.2 Equipment Required

2.2.1 Supplied

SAFE 328 System Includes:

SAFE 328 Fan 305467-00
Installation Kit 305477-00
Mating Connector 305479-03
Mating Pins 305478

2.2.1 Required but not supplied

Three (3) Number 6-32, 8-32 or equivalent mounting screws

2.3 Mounting

The SAFE 328 mounts with three (3) number 6-32 or 8-32 or equivalent machine screws.

Description	Manufacturer	Series Number	Manf. Part Number	Sandia Part Number
Connector Housing	Molex	2695	22-1-3037	305479-03
Crimp Contact	Molex	2759	08-50-0114	305478
Hand Crimper Tool	Molex	NA	*11-01-0185 or CR2262C	NA
Extraction Tool	Molex	NA	*11-03-0022	NA
Insertiion Tool	Molex	NA	*63812-0000	NA

Figure 2-1
Connector item Part Numbers

2.4 Electrical

The SAFE 328 operates on 28Vdc. It will provide a low on the Fan Fail pin (center pin) of the connector when operating normally. When airflow drops to 65% of nominal, as determined by fan RPM, the Fan Fail pin will output a high. An external pull-up is required. Power to SAFE 328 can be supplied from the aircraft buss or from the unit to be cooled if an output is available. If connected to the aircraft buss, the SAFE 328 should be protected by a 1.0 amp fuse or breaker.

2.5 Calibration

No calibration of the SAFE 328 is required. The unit is tested by slowing the fan manually and observing a high on the Fan Fail pin . Allow the fan to return to normal speed and observe a low on the Fan Fail pin.

2.6 Continued Airworthiness

Maintenance of the SAFE 328 is on condition only. No scheduled maintenance is required.

Avionics Cooling Solutions

Increase Your Avionics Reliability

It is well known that It is well known that reducing the temperature at which electronics components operate increases their life expectancy. The avionics you depend on for critical navigation and communication functions endure one of the harshest environments of any electronics...the avionics stack! Today's avionics are housed in smaller and smaller packages that retain heat. They are also subjected to chimney effect, where the heat from the bottom radios rise throughout the entire radio stack, increasing overall operating temperatures. Today's engineers are making greater use of surface mounted devices to reduce size and weight. And although these devices use less power, they can be more sensitive to hear. Fortunately, removing heat from your avionics is easy and inexpensive, making a cooling fan one of the best investments you can make when installing your new avionics. A cooling fan from SANDIA aerospace will give you the peace of mind knowing your avionics will continue to operate at peak performance.

The Choice Is Up To You

SANDIA aerospace offers a variety of cooling solutions to choose from. For most avionics stacks, a three port fan will provide all the cooling you need, two navigation units and a transponder. For more complex panel, try the five port fan. Used ports can be capped and reserved for use on later system upgrades

Know When You Lose Your Cool

For critical applications, SANDIA offers three cooling solutions that have a fault detections output that will notify you whenever the cooling unit drops below a preset level. This will allow you to obtain service on the unit as soon as practical, reducing any failure possibilities to your avionics.

Technical Specifications

Model	Operating Voltage	Current Draw	Size	Weight	Fault Detection	Certification
ACF 314	14 Vdc	960 mA nominal (1.7A startup)	5.18" x 5.18" x 2.1"	1.18 lb	No	FAA-PMA
ACF 328	28 Vdc	480 MA Nominal (.85A startup)	5.18" x 5.18" x 2.1"	1.18 lb	No	FAA-PMA
ACF 528	28 Vdc	480 mA nominal (.85A startup)	5.13" x 6.77" x 2.1"	1.18 lb	No	FAA-PMA
SAFE 328	22-31 Vdc	400 mA nominal (550 mA startup)	5.58" x 4.75" x 1.25"	.70 lb	Yes	FAA-PMA
SAFE 528	22-31 Vdc	400 mA nominal (550 mA startup)	5.13" x 6.77" x 2.1"	1.23 lb	Yes	FAA-PMA Pending
SAFE 128	22-31 Vdc	100 mA nominal (,.250 mA startup)	2.36" x 2.87" x 1.44"	.25 lb	Yes	FAA-PMA

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