CFA

Custom Fan Assembly

Description

The Custom Fan Assembly (CFA) is a fan-based cooling fan unit which has been specifically designed to optimally cool vertically stacked TenTec RX331 receivers.

T   he CFA unit provides the following advantages over the typical fan-tray unit*:

- **Provides Superior Cooling** • **Consumes Less Power**   • **Takes Up Less Rack Space**
- **Runs Quieter**   • **Multiple Temperature Sensors** • **Network Monitoring**

T   he CFA consists of 3 distinct and separate air flow chambers. Each chamber houses a number of quiet DC fans which draw air in through the sides of the CFA chassis and force it up through one of the 3 major intake ventilation grids on the underside of the TenTec receivers. This ensures that all of the air being drawn in through the CFA unit is directed up through the TenTec receivers.

T   he unique ability of the CFA to draw air in through the sides of the unit and not from underneath (as is done with conventional fan trays) allows rack space to be conserved as other rack equipment can be installed right up underneath the 1RU CFA.

T   he CFA is a computer based system equipped with a single board computer, a network interface and two 1-wire temperature sensors - one internal and one external. These sensors can be monitored via the chassis front panel display or by network clients through a web browser interface.

I   t is suggested that the external sensor be placed on top of the TenTec receiver stack, to monitor the temperature of receiver's exhaust air.   Monitoring this exhaust air will help ensure the receivers operate below their maximum operating temperature (50 degrees C).

typical fan-tray: Mclean/APW: STA68-9

Diagram
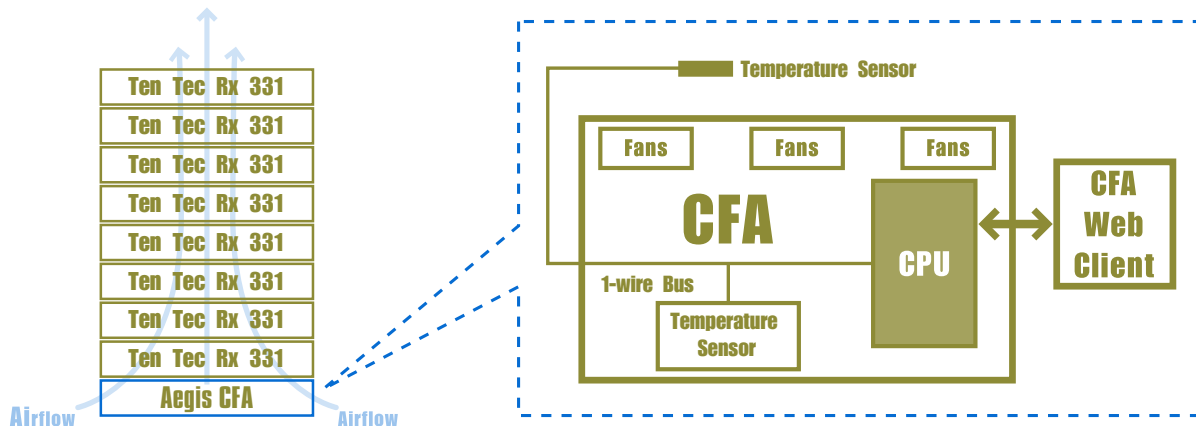
CFA
Custom Fan Assembly

Features

Performance:
The CFA can efficiently cool a vertical stack of up to 8 TenTec receivers, allowing them to operate below their maximum operating temperature (50 degrees C) when the ambient temperature of the intake air is below 35 degrees C.

Noise:
The noise associated with the CFA unit is ~49dB(A). This is quieter than the typical fan tray unit* whose noise is about ~51dB(A).

Power:
The CFA draws only 50W compared to the typical fan tray* which draws ~130W.

Chassis:
The unique design allows the unit to only need 1RU of space in which to operate, and this includes the intake ventilation clearance.

Clients:
Web Browser clients can connect the CFA to monitor the temperature probe readings.

e-mail Alert: (future)
Ability to setup an email alert profile, such that, in the advent of the temperature of one of the probes exceeding a given threshold an email alert can be issued to an operations center.

Temperature Sensors

The CFA uses industry standard 1-wire temperature sensors. These sensors measure the temperature and then relay the information to the CFA unit over a simple serial interface, using the 1-wire protocol.

• Additional 1-wire sensors can be integrated into the system should the need arise.

System Design

The CFA is extremely reliable and flexible due to the incorporation of:

• Compact Flash (CF) based file system compared to a system hard drive.
• The CFA file system is contained on a CF card alleviating any hard drive reliability problems from the CFA.

• High Performance, dependable COTS processing cards
• The CFA internal processing board is a high performance, dependable COTS processing board with high MTBF. Using COTS boards also aides in keeping the CFA costs down and enhances system support.

• Custom designed Chassis unit.
• The CFA chassis has been specifically designed for optimum operation with the TenTec Rx331 receivers. It is robust and allows for the efficient interconnection of the CFA internals.

• Remote Software Upgrade Capability
• The CFA application software is designed to be remotely upgraded over a network connection. This allows new updates to be uploaded seamlessly into fielded CFA units.

Specifications

System Hardware
• CPU System:
 • PC x86 SBC based system
• Operating System
 • Linux OS, Compact Flash based file system

Physical Inputs/Outputs
• Network Port (RJ-45, 10 Base-T Ethernet)
• Remote Serial Terminal Port (DB-9, RS-232)
• VGA, Keyboard, Mouse
• 1-wire interface (RJ-11)

Fans
• Number of fans: 8
• Model: Sunon GM1204PQV1-8A
• Type: DC Brushless Fan
• Rated Speed: 9200 RPM
• Air Delivery: 15.3 CFM (max)
• Static Pressure: 0.52 Inch-H2O
• Power: 2.8W
• Noise Level: 39dB(A)
• Total CFA Noise Level: ~48dB(A)
• Total CFA Directed Air Flow: <120CFM

Support Software
• Remote software upgrade capability

Documentation
• Users Manual

Power
• Nominal power: 45 W
• Max power: 50 W
• Operating Range: 100-240VAC, @47-63Hz (Auto-Select)

Chassis
• 1RU (19" x 20" x 1.75"), Fits standard 19-inch racks
• Jonathan 375QD-20 slide mounts fitted
• Weight: The CFA unit weighs approx. 10lb
 (45% less than a typical fan tray* which weighs approx. 18lb)

aegis
www.aegis-inc.net

www.aegis-inc.net