Max Air

Control Surface Manual

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Euphonix, Inc.
220 Portage Ave.
Palo Alto, California 94306
Phone: 650-855-0400
Fax: 650-855-0410
Web: http://www.euphonix.com
e-mail: info@euphonix.com

Euphonix
digital emotion

In the interest of continued product development, Euphonix reserves the right to make improvements to this manual and the product it describes at any time, without notice or obligation.

System 5, S5, PatchNet, eMix, EuCon, R1, Studio Hub, Audio Deck, Max Air, Reel Feel, Clear Displays, Track Panner, SnapShot Recall, DSC (Digital Studio Controller), Hyper-Surround, Total Automation and Mix View are trademarks of Euphonix, Inc.

Manual design by Rob Wenig.

Manual written by Tim Driedger, Steve Milne, and Rob Wenig.

Note: *This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

Caution: *Any changes or modifications made by the user that are not expressly approved by Euphonix could void the user's right to operate the equipment.*

IMPORTANT SAFETY INSTRUCTIONS

The lighting flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with a dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) **WARNING** – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

16) Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

17) To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

18) The mains plug of the power supply cord shall remain readily operable.

19) This unit is provided with a power supply cord set suitable for 120V AC input only (for U.S.A. and Canada). For other than U.S.A. and Canada, a qualified person must provide for use with this unit, an appropriate, approved power supply cord set which is in compliance with the end use country requirements and has a minimum cross-sectional area of 1.0mm^2.

20) For units with more than one power cord:

    Caution: This unit has more than one power supply cord. Disconnect two power supply cords before servicing to avoid electrical shock.

    Attention: Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher les deux cordons d'alimentation avant de faire le dépannage.

21) Operator Accessible Fuse:

    Caution: For continued protection against risk of fire, replace only with same type and rating of fuse.

    Attention: Pour ne pas compromettre la protection contre les risques d'incendie, remplacer par un fusible de même type et de même caractéristiques nominales.

Table of Contents

List of Figures

System Startup Sequence

See page 21 in the *Max Air Operation Manual* for the system startup sequence.

Description

The Max Air Console consists of a configurable number of Control Modules that comprise the Control Surface. The Max Air Control Surface is the digital control center for all Max Air system components and communicates with them via Ethernet network connections. Control signals are transmitted via the Ethernet switch and distributed to the Max Air system components. No audio passes through the Control Surface.

Overview

The Max Air console must contain a CM404 center section module and can have up to three fully loaded CM416 16-channel Modules, each with 16 physical faders. The system can have up to 48 faders, not including the eight faders in the CM404 master section. The CM416HL and CM416HR are half-loaded (left or right) 8-fader modules that can be used to expand your system.

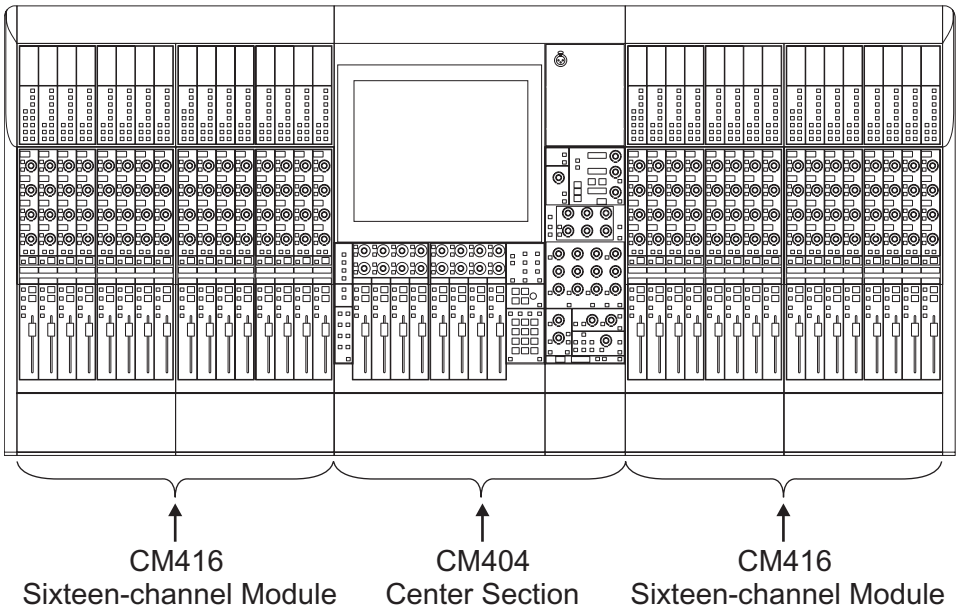

Figure 1 Typical Console Layout

Rear Panels

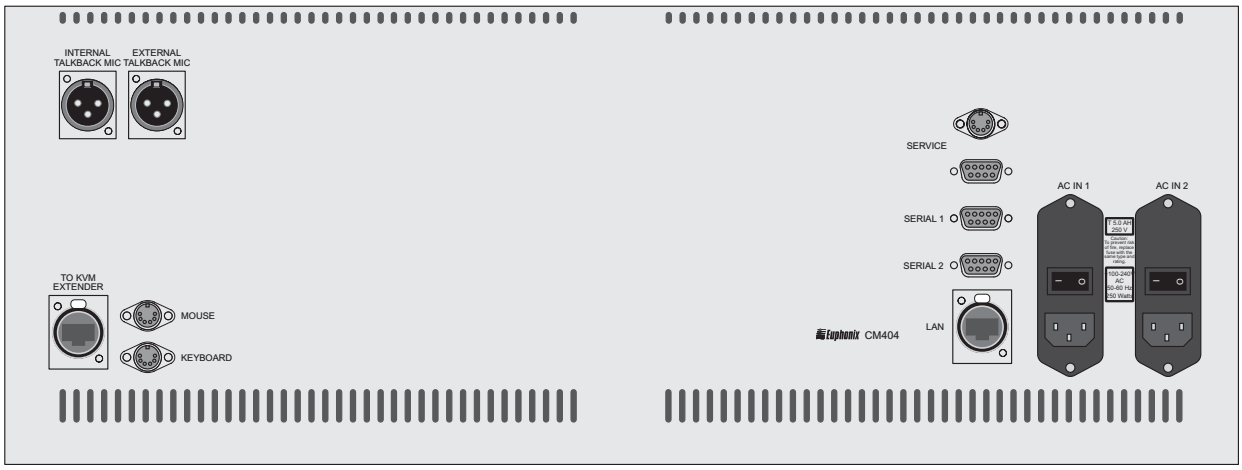

Figure 2 CM404 Rear Panel

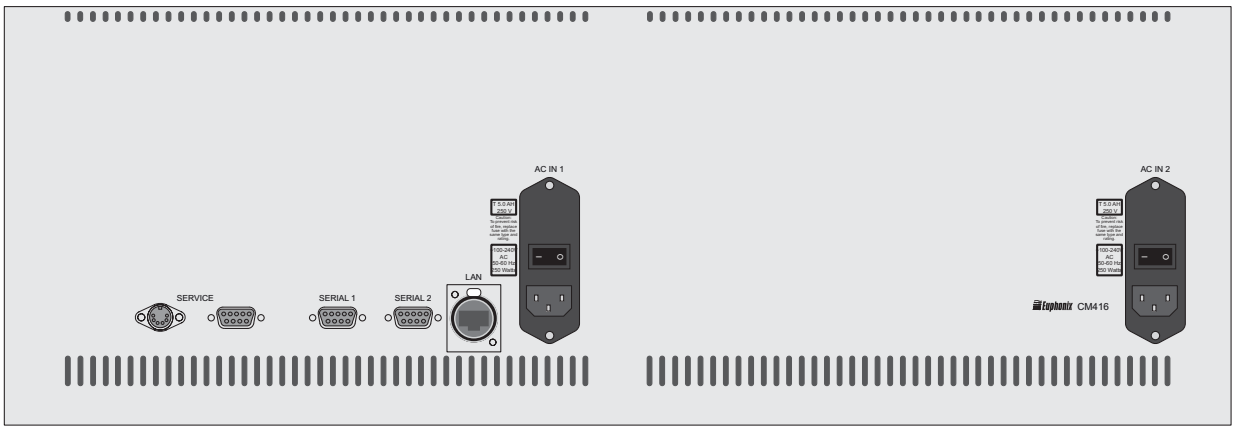

Figure 3 CM416 Rear Panel

Power Connectors (IEC): Accepts two standard IEC power cords (provided). Two autoranging switching supplies accept voltages between 100–240 VAC, 50–60 Hz.

LAN Port (RJ45): Connect to EuCon Network Hub via RJ45 through the console ethernet harness (provided).

To KVM Extender (RJ45): Connection to KVM extender (CM404 only)

Talkback (XLR): Connection to the internal and external talkback microphones.

Keyboard and Mouse (PS2): Connection to the keyboard and mouse or trackball.

Serial 1, 2 (DB9): RS232 serial ports (for service only).

Service (DB15HD, PS2): VGA video and keyboard connection (for service only).

Self Test Procedure

The following pages describe the operation of standalone self-test software for the Max Air control modules. The self-test code is designed to be invoked in a module right after power-up and before the Single Board Computer (SBC) downloads code.

Initiating Self Test

Enter self-test by pressing the self-test enter keys shown below. This must be done before the SBC code download. If code download from the SBC occurs during the self-test, the module automatically exits self-test and executes the downloaded code. Use the keys shown below to perform the different tests. After entering the test, use the detailed description of each test on the following pages to navigate through different modes within a test.

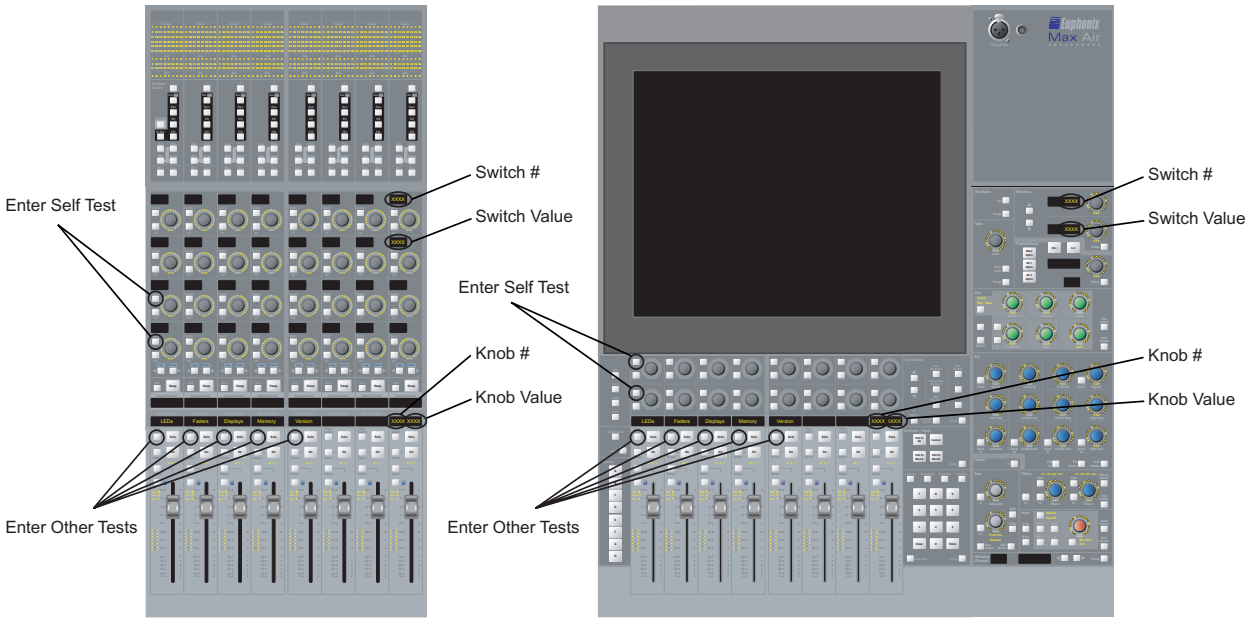

Figure 4 Control surface self-test keys

Switch and Knob Test

Momentary Switch Press

Pressing any switch toggles the switch value display from 00 to 01 and shows the switch number in the display.

Knob Value Display

Turning any knob displays the hex value (00–60) of the knob and shows the knob number in the display.

LED Test

LED loop

This switch cycles through all the LED colors.

Color Toggle

These switches light all the LEDs of each color: green, red, yellow, orange

All LEDS

This turns all LEDs on.

NOTE: *To avoid overheating, the module should not be left with* ***All LEDS*** *on for more than 5 minutes.*

Fader Test

All Fader Up

All faders all the way up.

All Fader Down

All faders all the way down.

Fader Echo Test

All faders follow the one fader touched.

Fader Loop Test with Speed Control

All faders cycle up and down at the speed determined by the speed control knob. This fader cycle test times out after 5 minutes to protect the faders from burning out.

Backstop PFL Switch Test

The Backstop PFL display lights up when a fader is pulled back to enable its backstop PFL switch. This mode is always active.

Fader I/O

- Fader Write value display
  Any value written to a fader is displayed in its designated fader write intelligent display. This mode is always active in fader test mode.
- Fader Read value display
  All faders are continuously read and the read value is displayed in its designated fader read intelligent display.

Display Test

Clear All

Char Up

Char Down

Char E

Char W

Enumerate

Memory Test

ROM Test

This test reads the ROM and computes and displays the checksum. The user/tester can match the checksum to a known good checksum (see below) to make sure ROM test is successful.

CM404 Checksum - 6514
CM416 Checksum - D308

RAM Test

This tests the upper unused portion of the CPU board RAM. The *Pass* display shows up when the test is done.

PC104 RAM Test

This test writes and reads the whole PC104 RAM and checks for errors. The *Pass* display shows up when the test is done.

Selecting and Adjusting the Onscreen Display

The Touchscreen image controls are found on the panel behind the Touchscreen. If the image needs adjustment, access press the **Menu** button and follow the onscreen instructions.

Figure 5

Touchscreen Alignment

The Max Air Touchscreen can be calibrated using the **Elo Touchscreen** utility. Note that different users may have slightly different ways of touching the screen. If an operator finds they often miss onscreen objects, re-calibrate the touchscreen:

1. Select **Control Panel** from the **Start** menu.

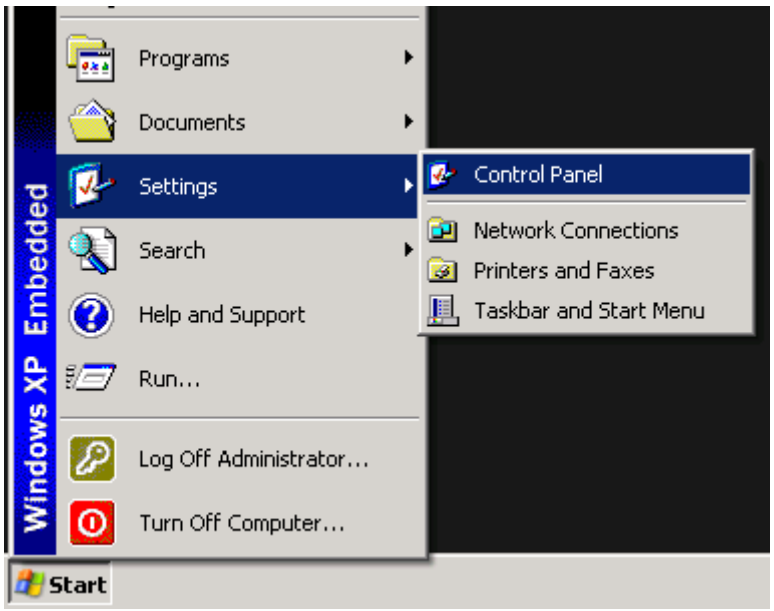

Figure 6

2. Double-touch **Elo Touchscreen**.

Figure 7

The Elo popup appears.

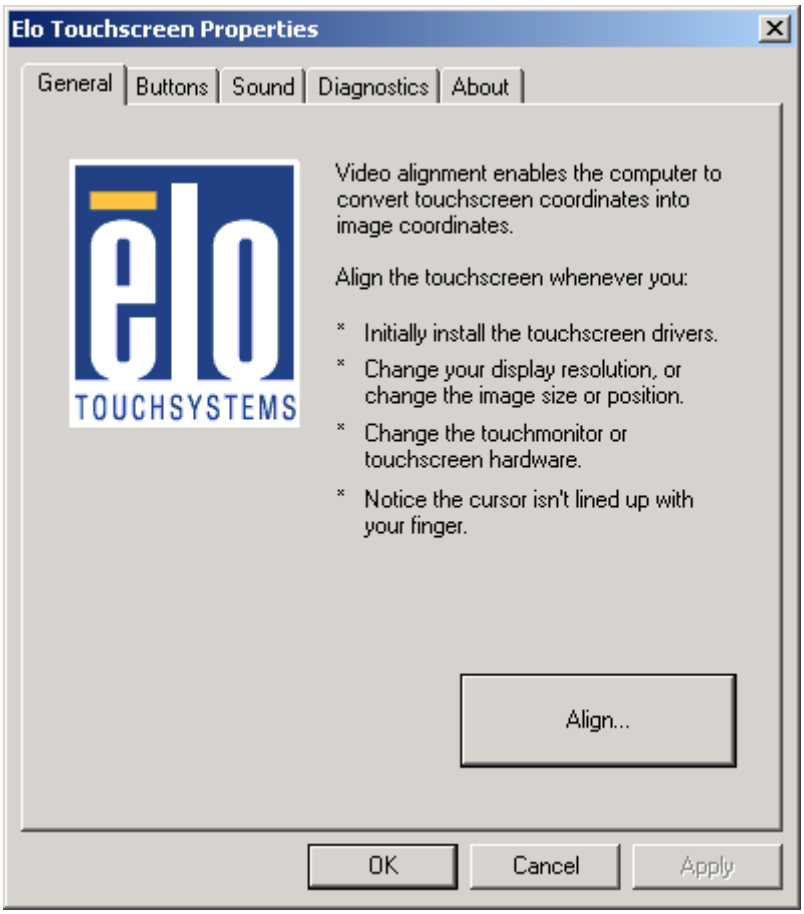

Figure 8

3. Touch **Align** and follow the onscreen instructions.

When asked to touch the targets on the screen, best results are achieved by touching the targets naturally without thinking too much about it. This aligns the touchscreen to an individual's hand-eye coordination.

Changing the ID of a CM416 Module

1. Power cycle the module and then simultaneously press and hold the two lower knobs on the first strip before the module connects to the System PC (you have about 15 seconds).

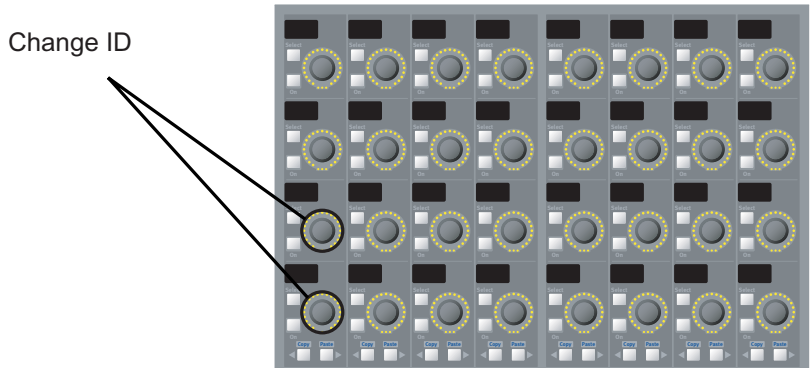

Figure 9 Changing the CM416 ID

2. Set the ID using the first strip only in each CM416. Do not set the ID using strip nine.

   The CM416 displays shows "Position – 0000 Use 1st fader to set module position."

3. Move the fader on strip one to select the ID.

   The ID appears as a hexadecimal number (0=ID 1, 1=ID 2, 2=ID 3, 3=ID 4, 4=ID 5, 5=ID 6).

4. Press strip one's fader **Select** key to commit to the new ID.

   The module continues to boot only after committing to the change.

System Ethernet IP Addresses

System Computer			192.168.0.1
Interface Pilot		ID 9	192.168.0.208
Digital Pilot		ID 1	192.168.0.200
CM404		ID 10	192.168.0.19
CM416	Strip 1	ID 1	192.168.0.10
	Strip 9	ID 2	192.168.0.11
	Strip 17	ID 3	192.168.0.12
	Strip 25	ID 4	192.168.0.13
	Strip 33	ID 5	192.168.0.14
	Strip 41	ID 6	192.168.0.15

Technical Specifications

Power

Voltage	90–254 VAC (RMS), 50/60 Hz
Power Consumption	2 x 50 W per module 1.0 A (US 117 V) 0.5 A (Europe 230 V) 1.0 A (Japan 100 V)
Inrush Current	25 A
Fuse	T5 A
Heat Dissipation	CM404 520 BTU/hr CM416 600 BTU/hr CM416H 520 BTU/hr

Environmental Requirements

Operating Temperature	0–35°C (Ambient)
Storage Temperature	-10 to 55°C
Humidity	0–90% non-condensing

Dimensions

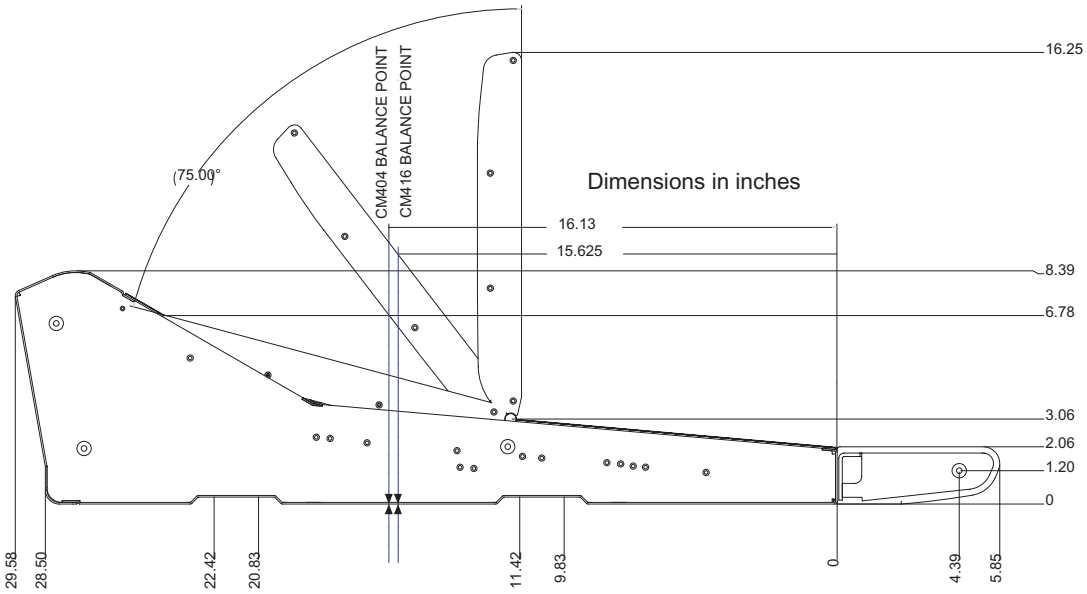

Figure 10 Side Dimensions

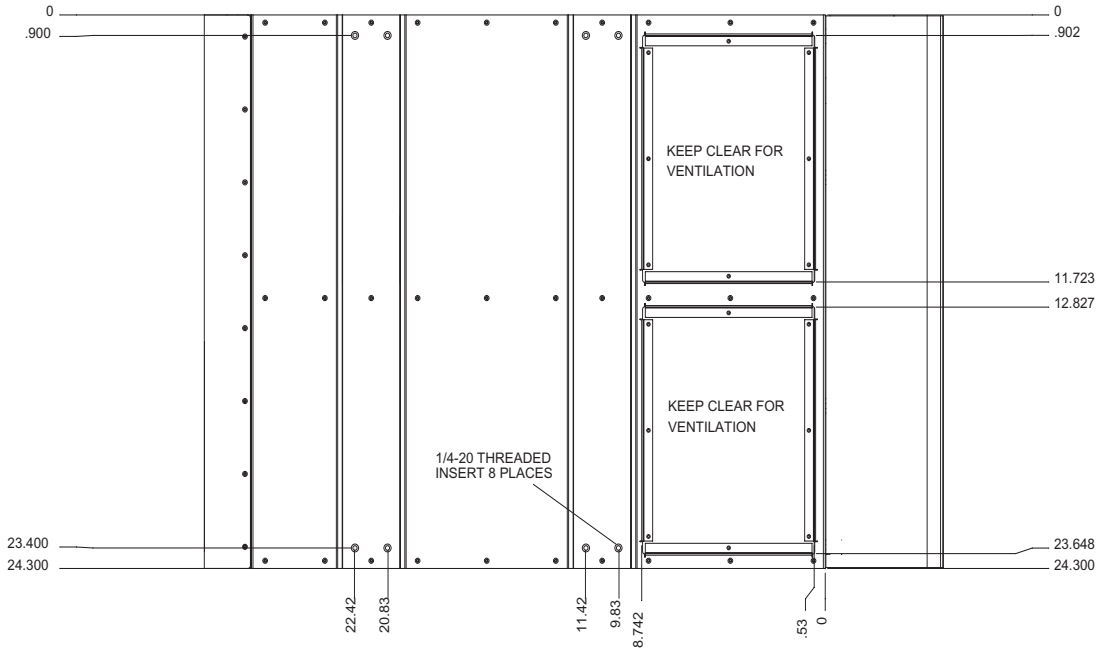

Figure 11 CM416 Bottom Dimensions

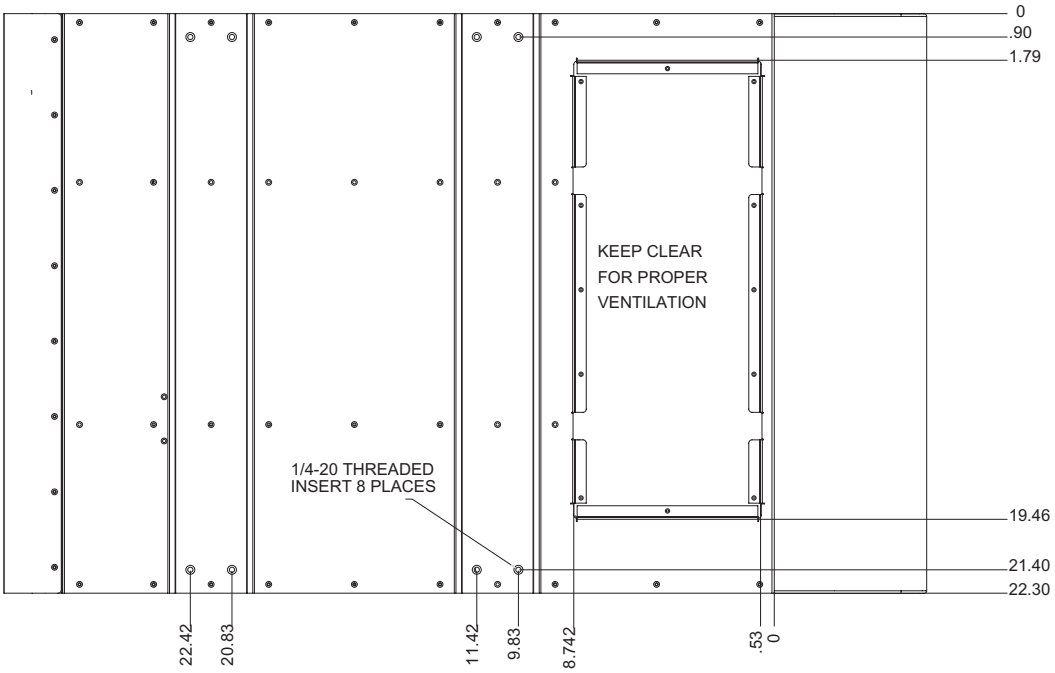

Figure 12 CM404 Bottom Dimensions

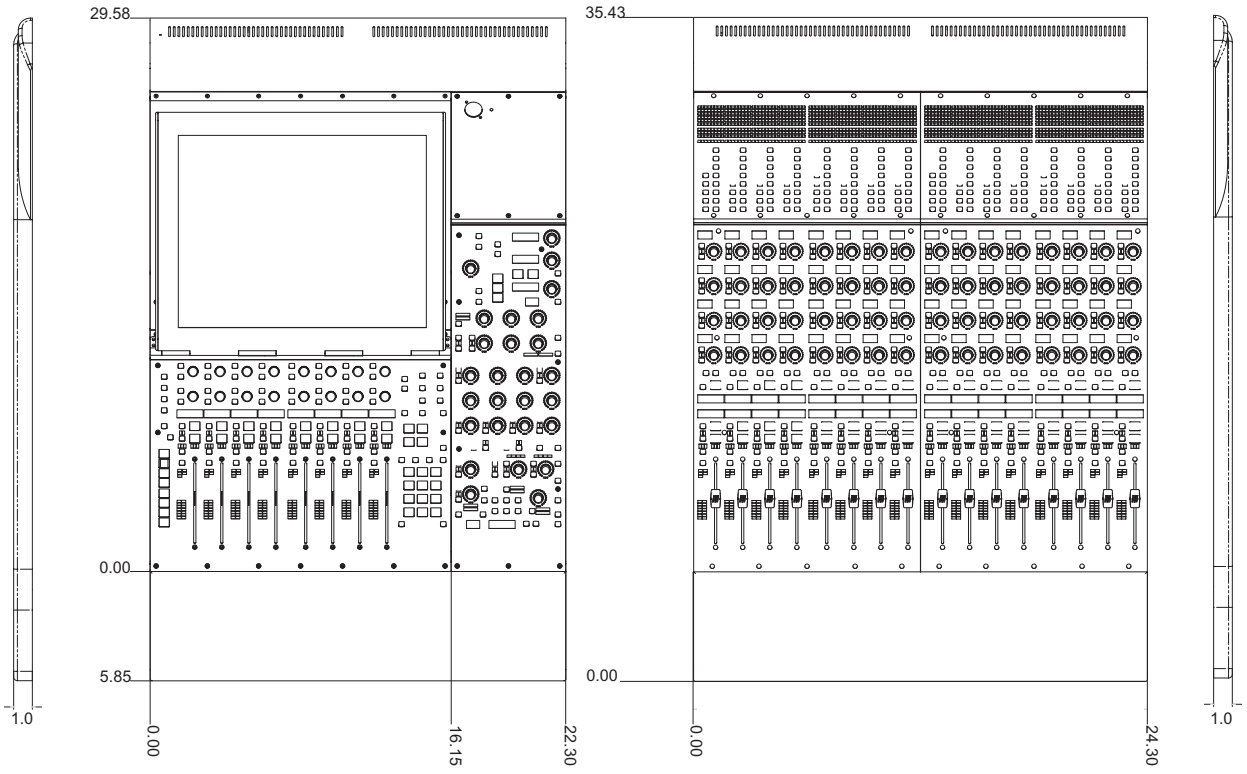

Figure 13 Max Air Top Dimensions

User Reference

Internal Components

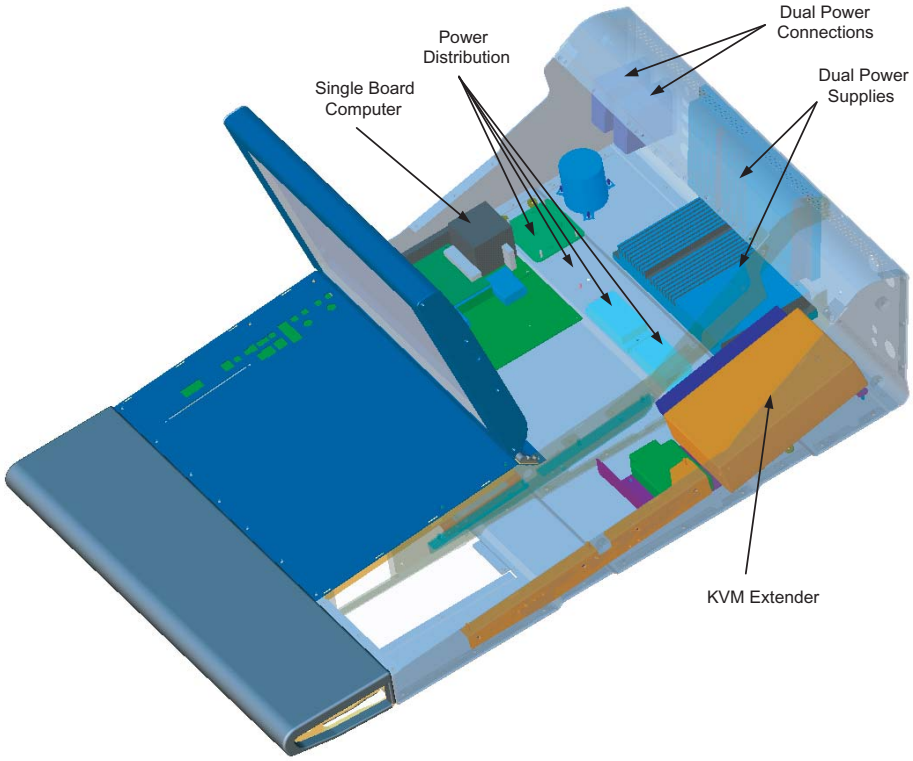

Figure 14 CM404

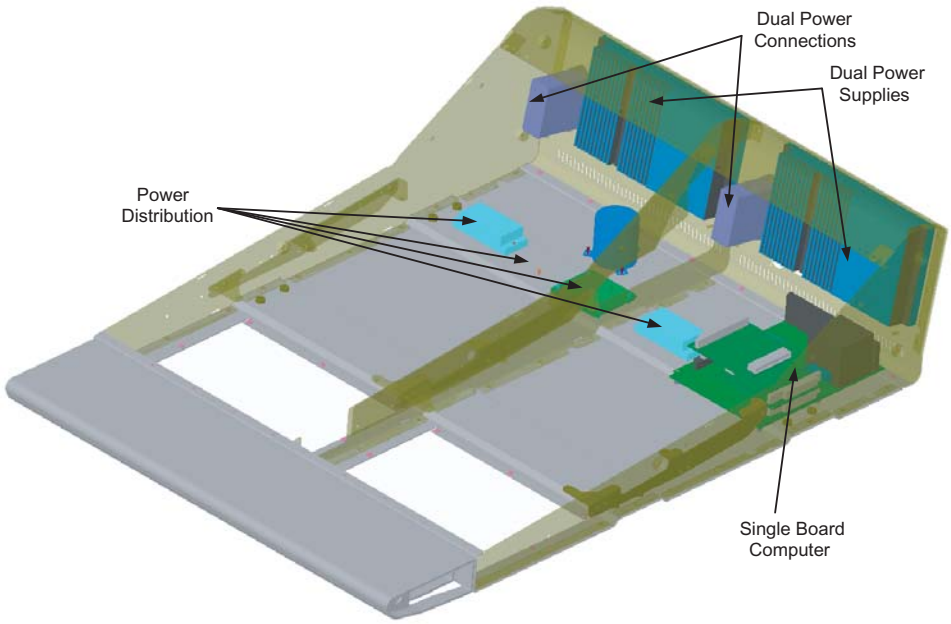

Figure 15 CM416

Fans

The CM416 modules have low-noise internal fans and a thermal sensor between the displays on strips five and six. If a module gets too hot, the fans automatically turn on at a low or high speed depending on the temperature. The fans turn off automatically when the internal temperature returns to normal.