

## MODEL 528 SERIES DIGITAL COMMUNICATION STATION

### GENERAL DESCRIPTION



Figure 1 - 528HFM  
Front View

The IED 528 Series Digital Communication Station is a user communication device for initiating audio/visual announcements, messages, and pages with the IED 500ACS Announcement Control System®. It is a network *appliance* with its own unique IP address, which simplifies its installation and configuration. The 528 Digital Communication Station is unique to Airport Communication Systems in that it provides a Four Inch (diagonal) backlit Color LCD Display for a simple and flexible user interface. The color LCD display is software controllable to provide an intuitive human/machine interface (HMI) for making flight announcements, general purpose announcements, or emergency announcements. The LCD utilizes menus consisting of function buttons, navigation buttons, pop-up windows, and programmable softkeys. When the 528 station is used with the IED Flight Announcement System (FAS), the FAS message sequences are initiated from the menu-driven softkeys. There is no need to memorize any keypad number combinations; however, a full 12 button keypad is also provided for user shortcuts.



Just like its predecessor, the 518 Microphone Station, the 528 Digital Communication Station uses a single Ethernet interface for audio and control data. The 528 station is fully compatible with IEEE 802.3af standard for Power Over Ethernet (POE), allowing the 528 to be powered directly from any standard/off-the-shelf POE switch. The IED 528 Digital Communication Station is the only true digital Ethernet paging station in the airport industry, and it is one of the IED components in the only airport communication system that runs on Ethernet directly from the microphone station all the way to the power amplifier.

The processing power for the IED 528 comes from the onboard 32-bit ARM processor. This powerful ARM processor manages the LCD controller, memory and graphics library, Ethernet interface, audio signal processing, and self-test diagnostics. With these additional user interface capabilities, the IED 528 is much more than a microphone station; it is a full Digital Communication Station.

This and all IED LAN-based 500ACS® components are designed to maximize the benefits of a standard 100 Mbps Ethernet LAN based network, using off-the-shelf switches and structured CAT5e or better cabling. The IED 528 Series Digital Communication Stations utilize CobraNet® technology.

The new 528 Digital Communication Station elevates the simple and powerful user interface to the next level. With updated software applications and graphics files, the 528 is capable of enhanced system control beyond announcement and paging, such as background music selection, level control, and other future system parameters.

### **Network Requirements**

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The IED 528 Series Digital Communication Stations utilize CobraNet® technology licensed from Cirrus Logic®.

Live audio on the data network is time sensitive and requires minimal latency through the network to insure uninterrupted audio. The IED 528 Paging Station and CobraNet operate on Layer 2 (MAC Layer) of the OSI Model. This traffic will not operate on a Layer 3 Router or above. VLAN's may be required for managing traffic as well as Quality of Service (QoS) and Prioritization configuration of network switches. All connections to the 528 Series Microphone Stations must be full duplex 100 Mbps Ethernet.

### **Trademark Notes**

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ACS and Announcement Control System are registered trademarks of Innovative Electronic Designs, Inc.

Cobranet is a trademark of Cirrus Logic, Inc.

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## SPECIFICATIONS

### ELECTRICAL

The following electrical specifications are measured from the microphone station input to the amplifier input in the T9160 Power Amplifier Mainframe, and include the performance of both the microphone station and the T9160 Power Amplifier Mainframe.

1. Frequency Response . . . . . +0, -1.0 dB  
22 Hz - 22 kHz, Input Level = -20 dBu
2. Total Harmonic Distortion, THD . . . . . <0.1 %  
-20 dBu input, 22 Hz - 22 kHz
3. Signal-to-Noise Ratio, S/N . . . . . >85 dB  
22 Hz - 22 kHz, -20 dBu Input
4. Compressor  
Compression Threshold . . . . . -15 dBu  
Ratio . . . . . 6:1  
Attack Time, 10 dB Step . . . . . 5 mSec  
Release Time  
40 dB . . . . . 15 Sec  
10 dB . . . . . 3 Sec
5. Maximum Input . . . . . +6 dBu
6. Maximum Output . . . . . +7 dBu
7. Gain . . . . . 23 dB
8. Analog-to-Digital Converter, A/D . . . . . 24 bit
9. Internal Processing . . . . . 32 bit, Floating Point
10. Sample Rate . . . . . 48 kHz
11. Latency (Through two network switch hops) . . . . . 5.7 mSec

### STANDARDS UTILIZED

1. Full-Duplex Operations . . . . . IEEE 802.3x
2. Fast Ethernet, 100Mbps . . . . . IEEE 802.3u  
The 528 Series specifically uses 100Base-TX
3. Data Terminal Equipment Power . . . . . IEEE 802.3af  
via Media Dependent Interface (PoE)

### CONNECTING CABLE

All 528 Series Microphone Stations

1. Digital Audio/Power/Control . . . . . CAT5e or better  
For distances to a maximum of 100 Meters (approximately 300 feet)  
to the connected switch. Cable installed and tested in accordance  
with ANSI/TIA/EIA 568B Standards.

### ENVIRONMENTAL

1. Operating Temperature Range . . . . . (+32 °F - +104 °F) 0 °C - +40 °C
2. Storage Temperature Range . . . . . (-40 °F - +158 °F) -40 °C - +70 °C

### POWER CONSUMPTION

1. Supply Power. . . . . <10 W  
Supply Voltage = 48 VDC





Figure 2 - Model 528VFM Digital Communication Station  
Front Oblique View

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Figure 3 - 528LD  
Locking door enclosure, door open

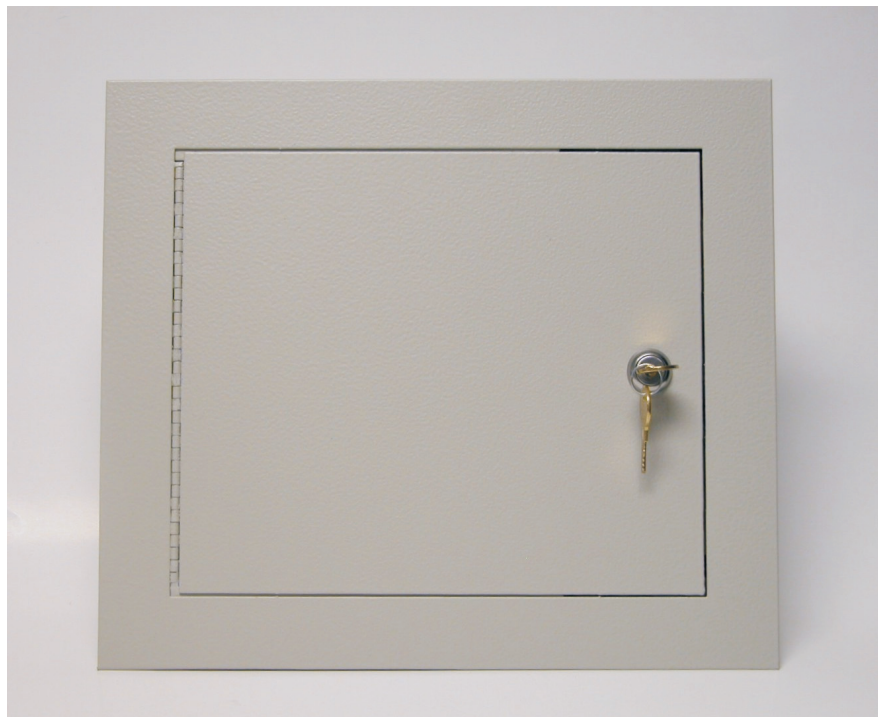
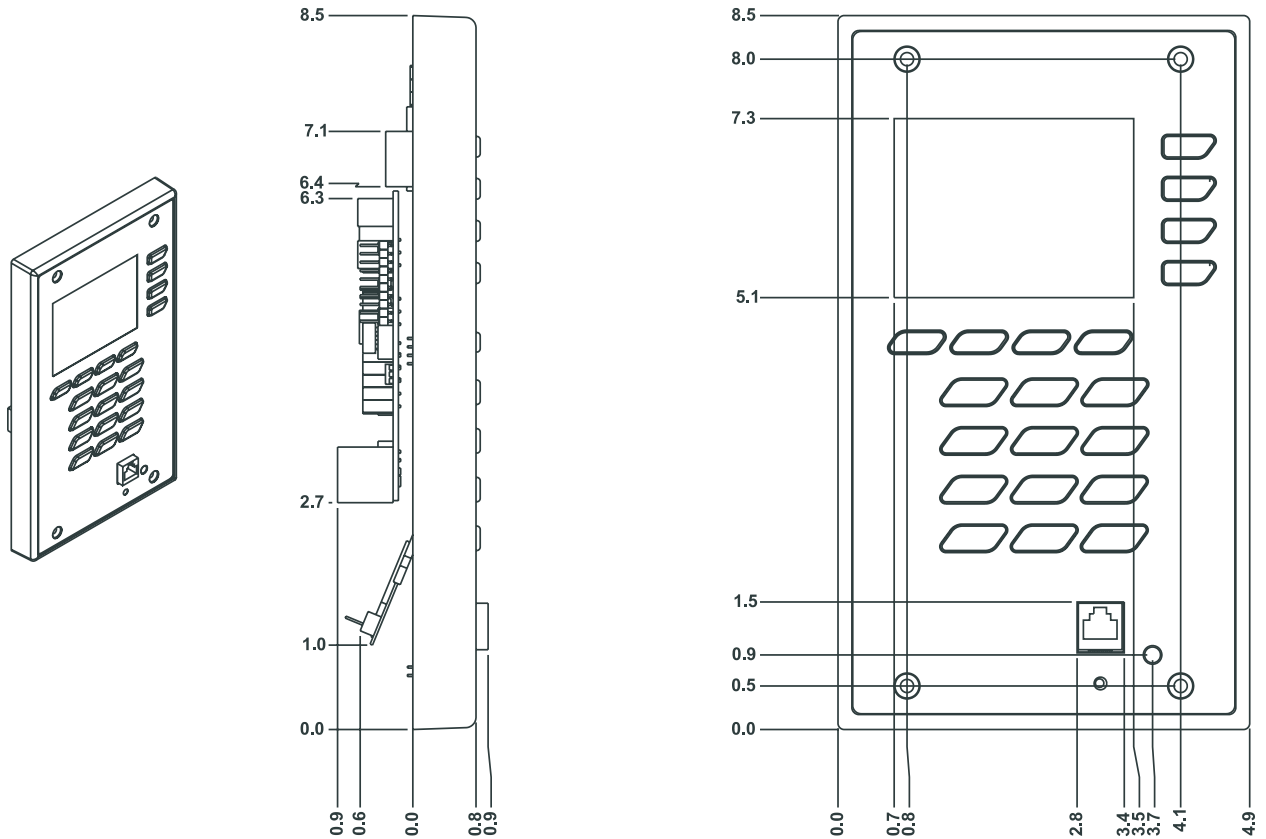


Figure 4 - 528LD  
Locking door enclosure, door closed

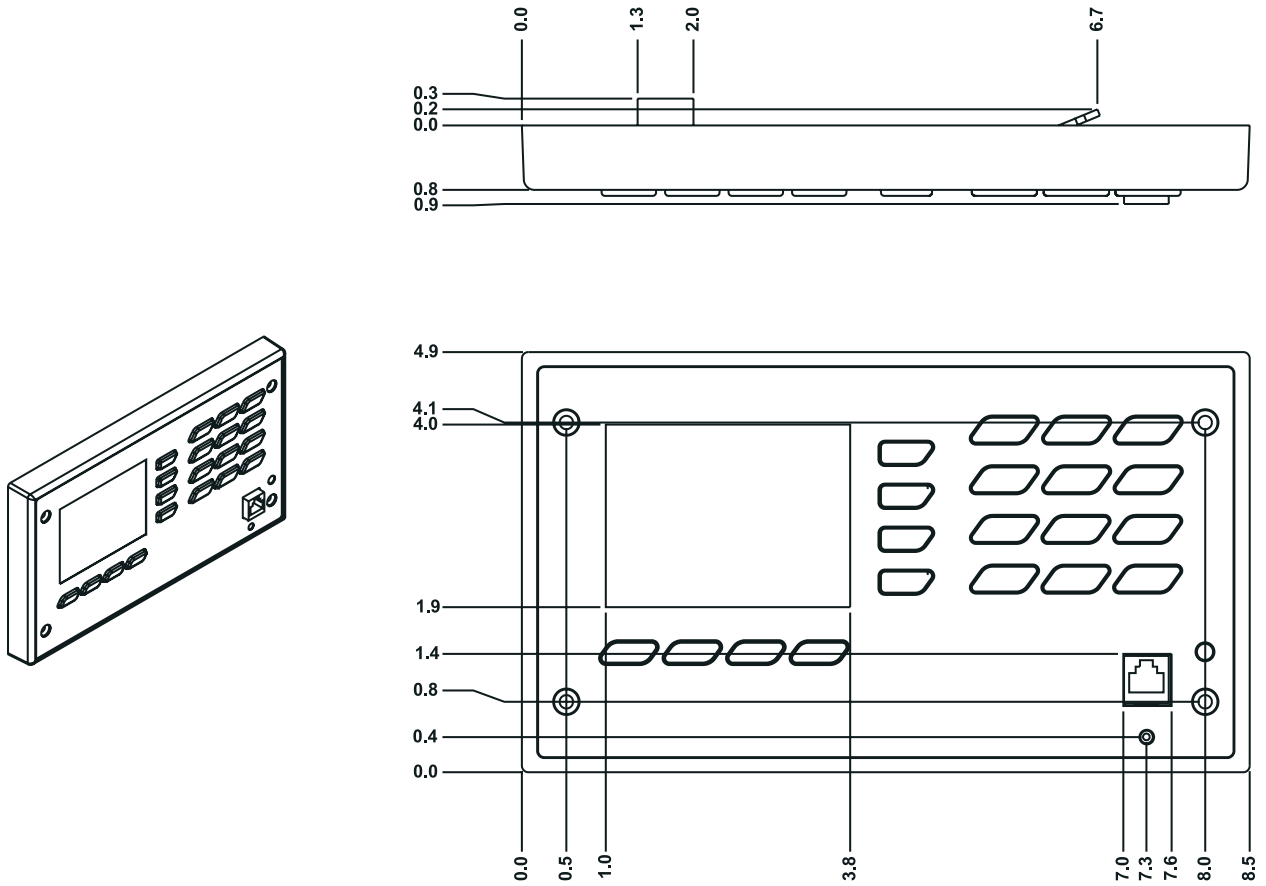




All dimensions are shown in inches

Figure 5 - Model 528VFM  
Vertical Flush Mount Microphone Station

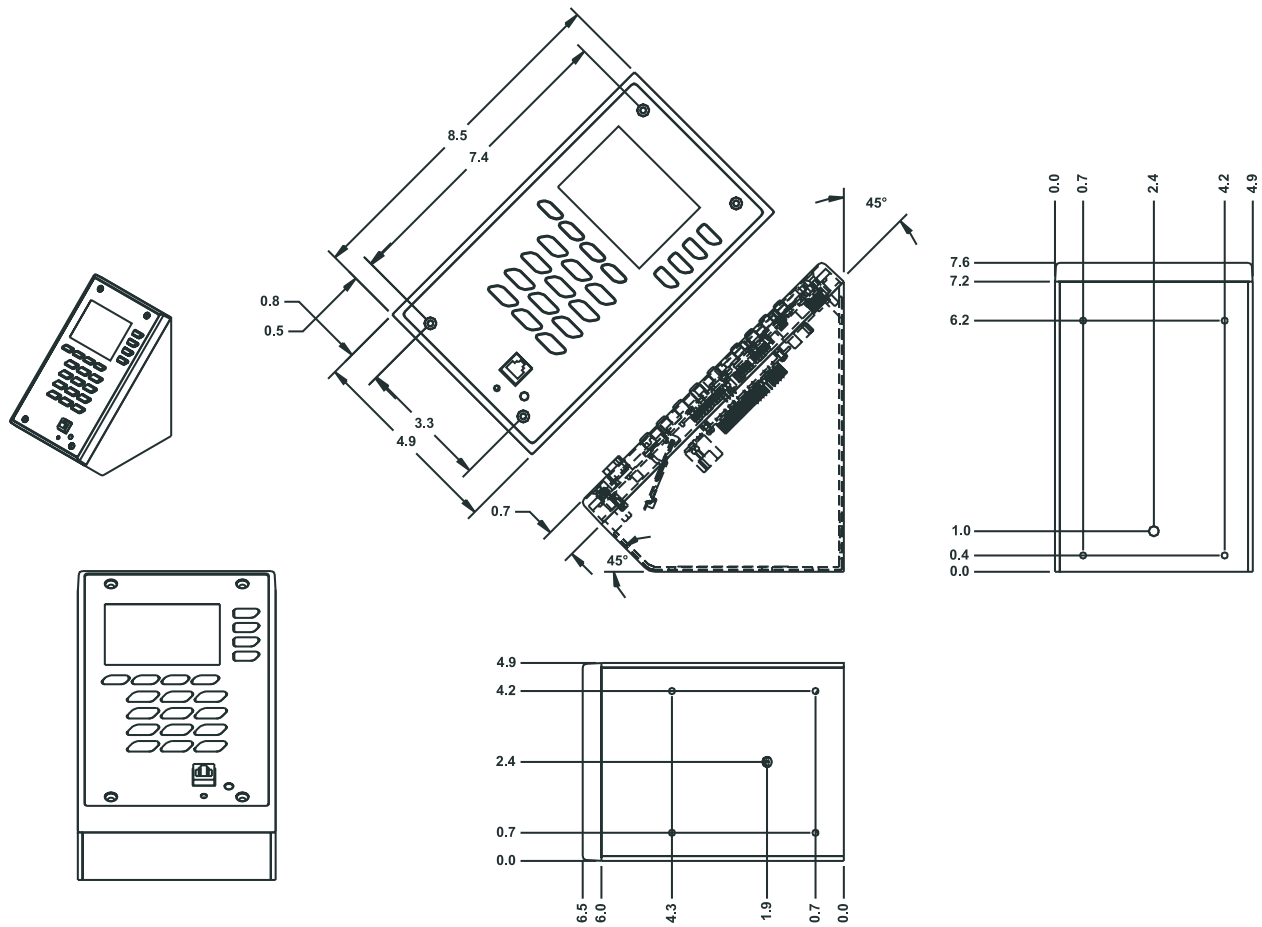
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All dimensions are shown in inches

Figure 6 - Model 528HFM  
Horizontal Flush Mount Microphone Station

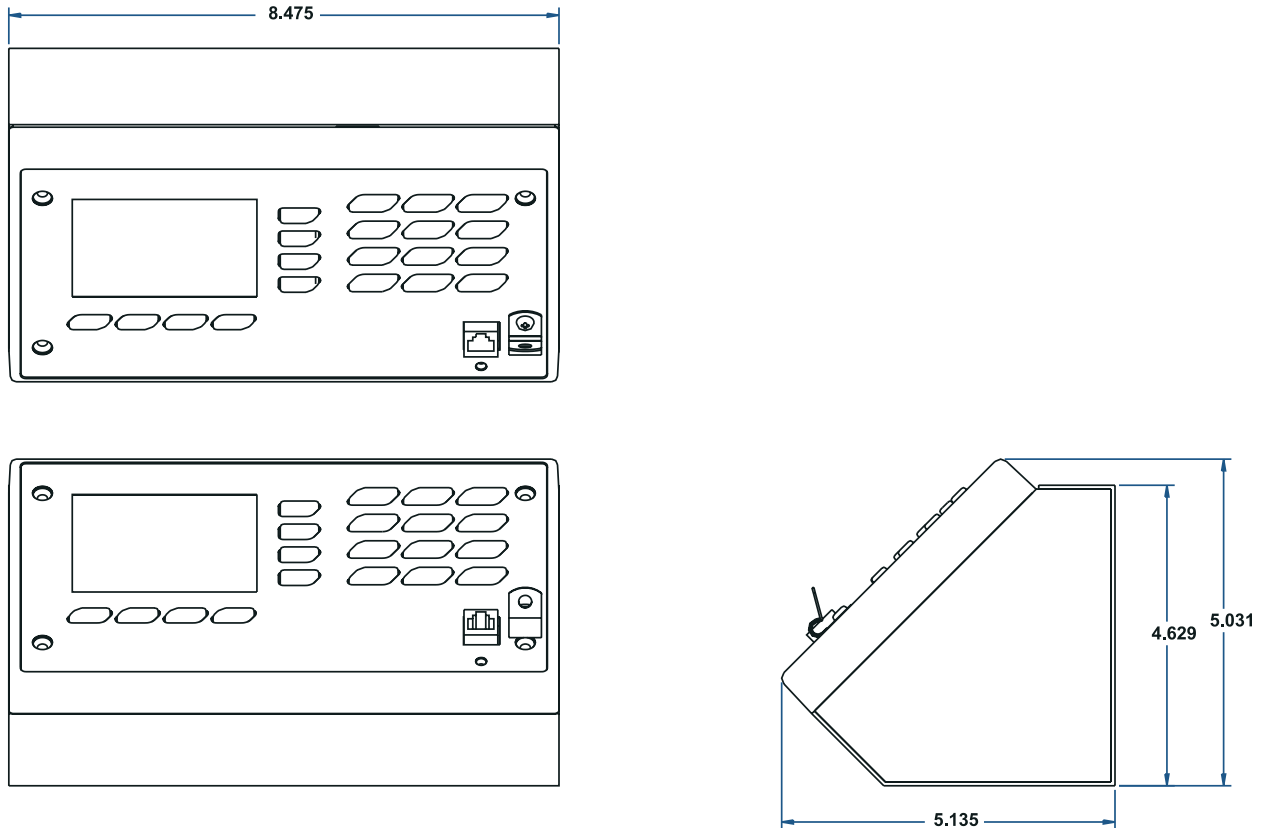




All dimensions are shown in inches

Figure 7 - Model 528VDT  
Vertical Desktop Microphone Station

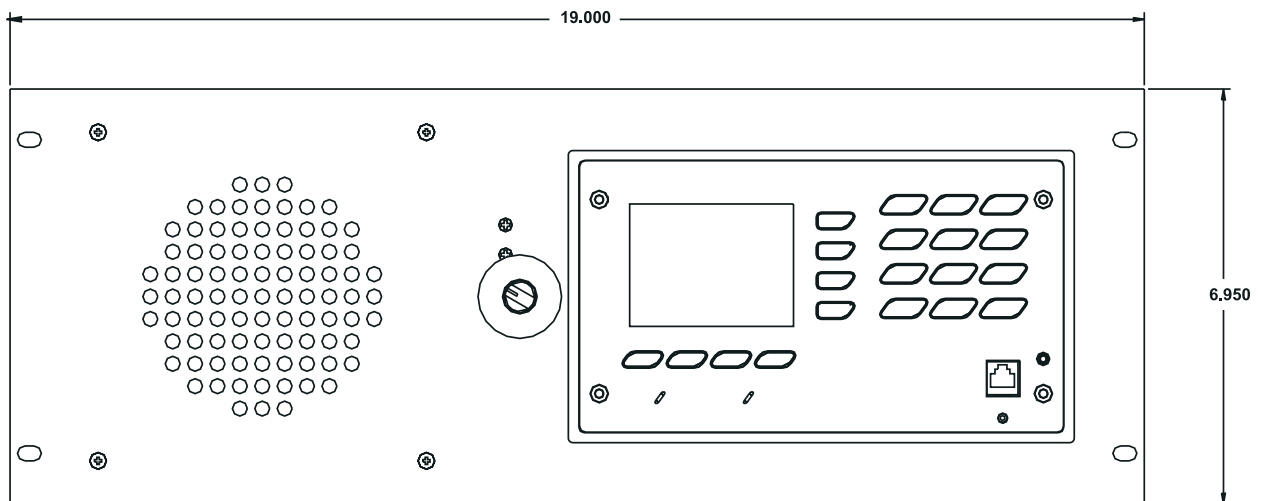
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All dimensions are shown in inches

Figure 8 - Model 528HDT  
Horizontal Desktop Microphone Station

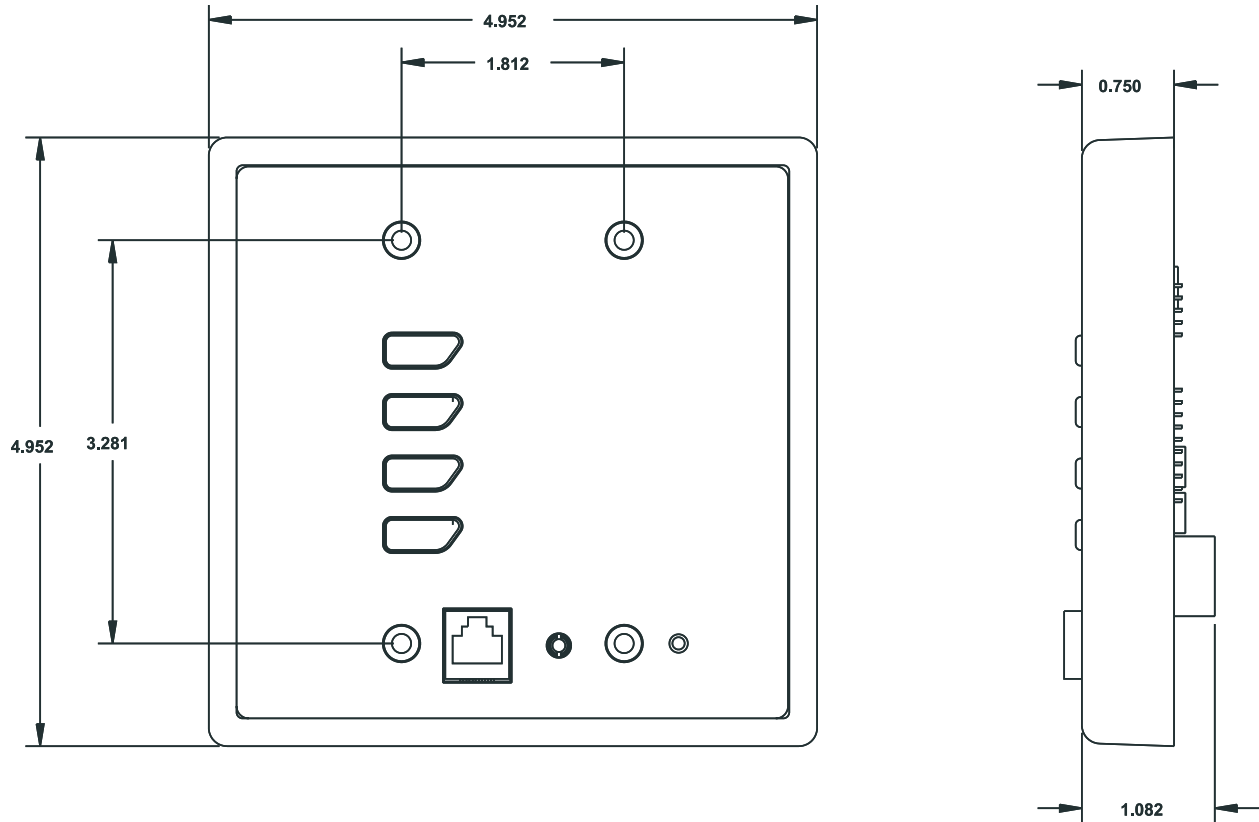




All dimensions are shown in inches

Figure 9 - Model 528SRM  
Rackmount Microphone Station

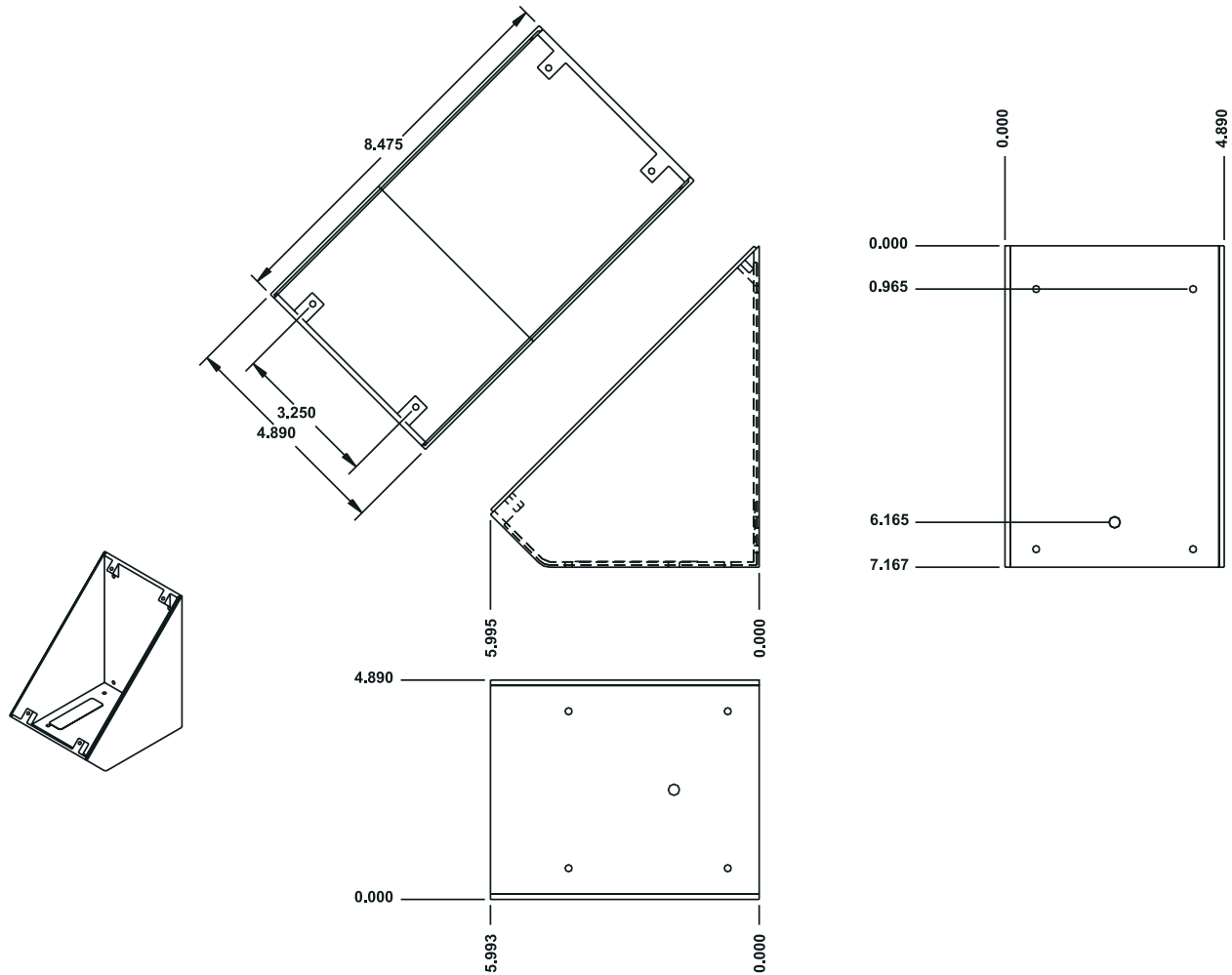
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All dimensions are shown in inches

Figure 10 - Model 528SK  
Sidekick Remote Microphone Station

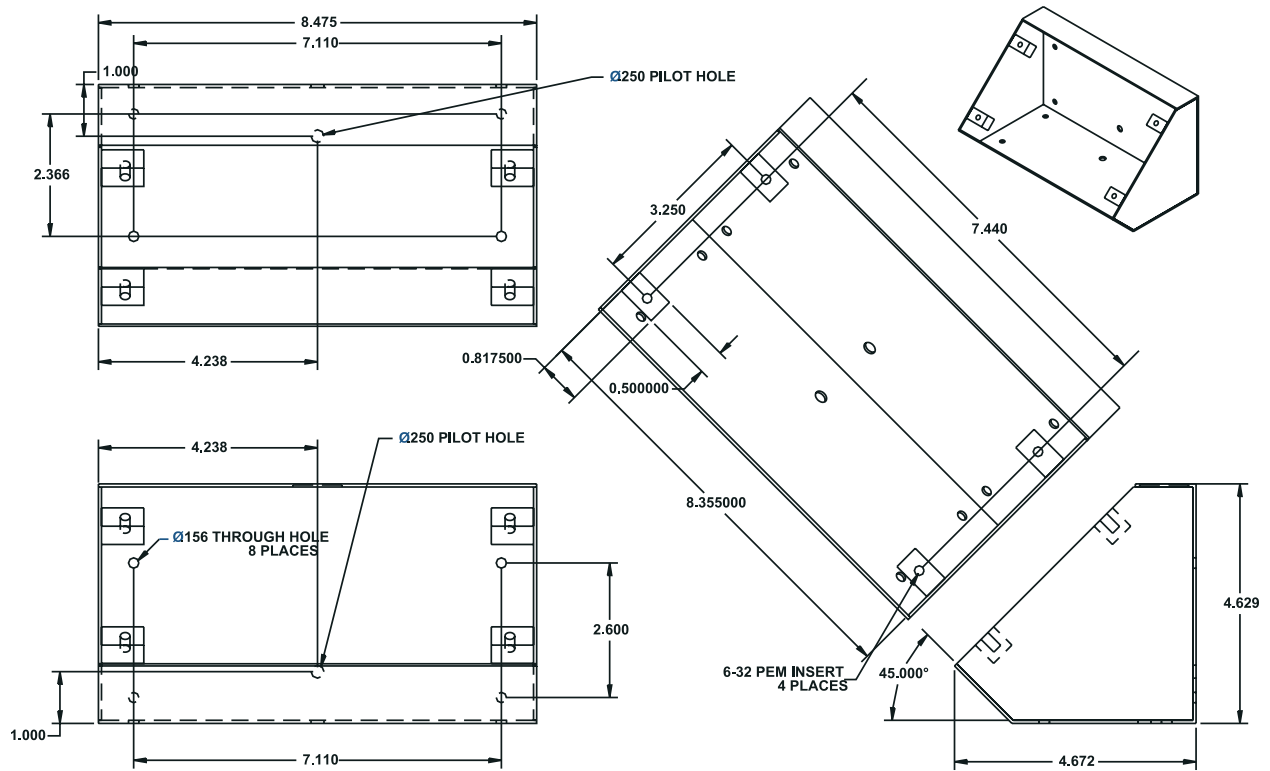




All dimensions are shown in inches

Figure 11 - Model 528VBB  
Vertical Back Box

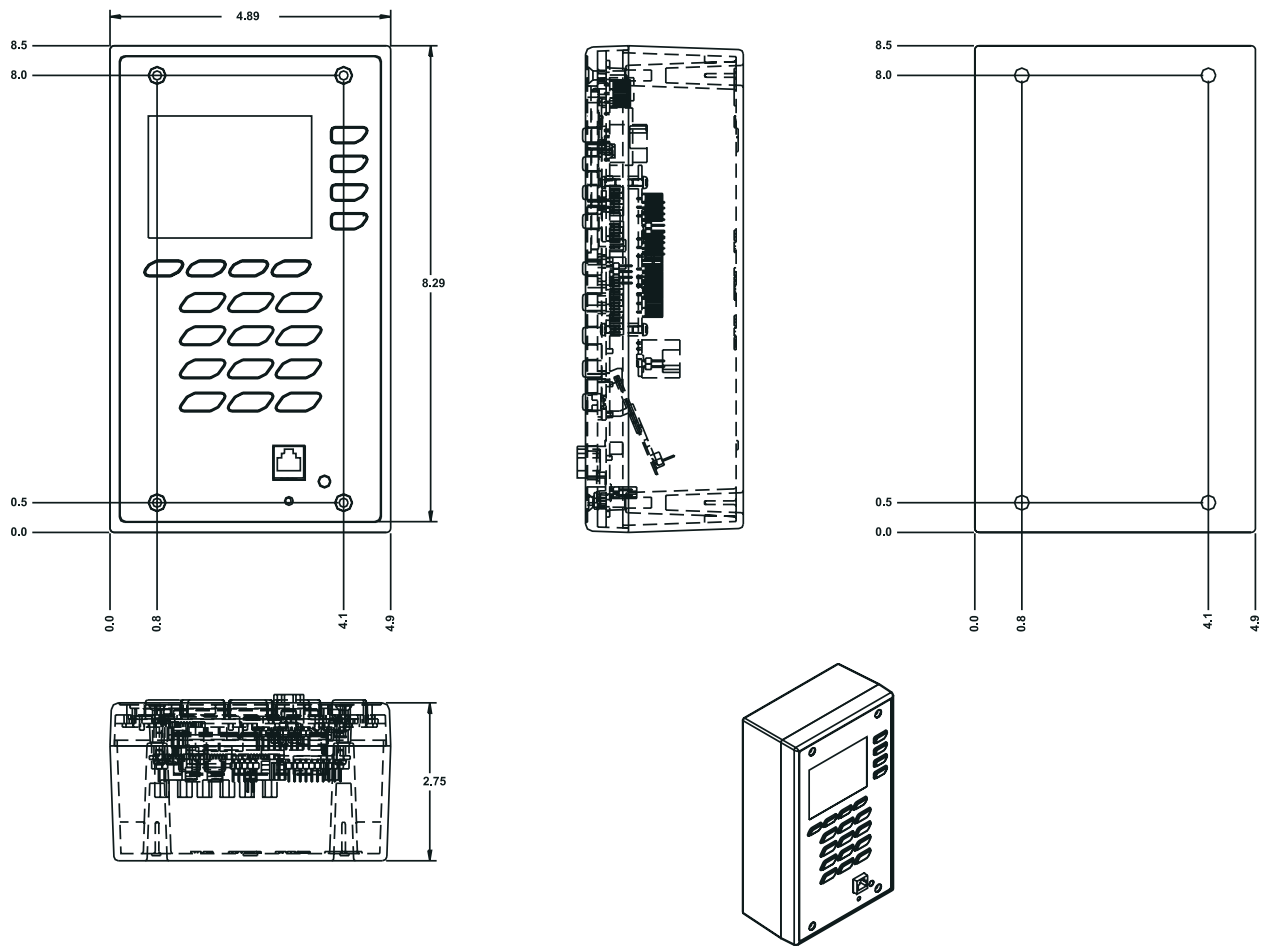
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All dimensions are shown in inches

Figure 12 - Model 528HBB Horizontal Back Box

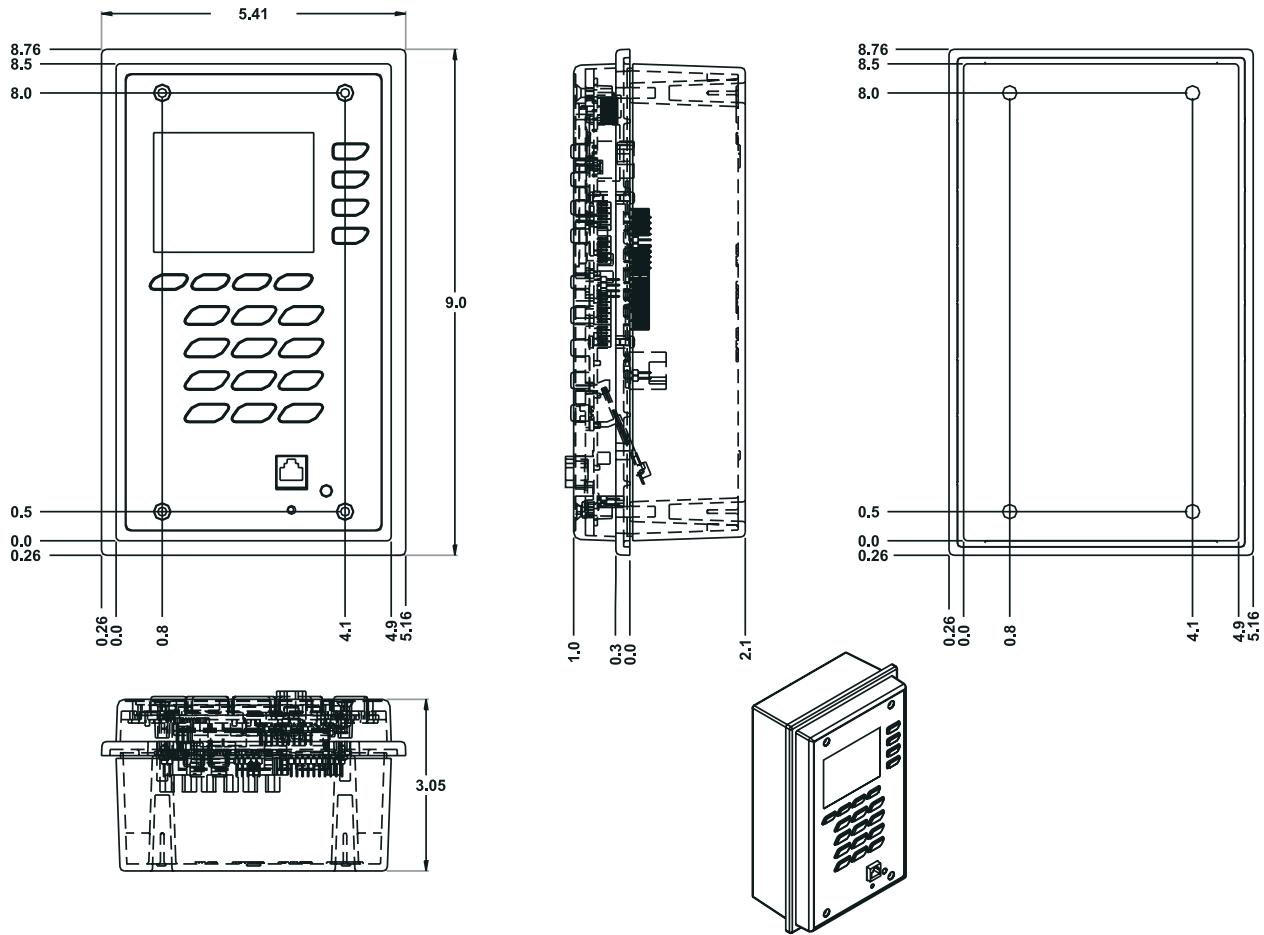




All dimensions are shown in inches

Figure 13 - Model 528SBB Surface Mount Back Box  
 It is shown assembled with the Model 528VFM.  
 It can also be used with the horizontal Microphone Station, the Model 528HFM

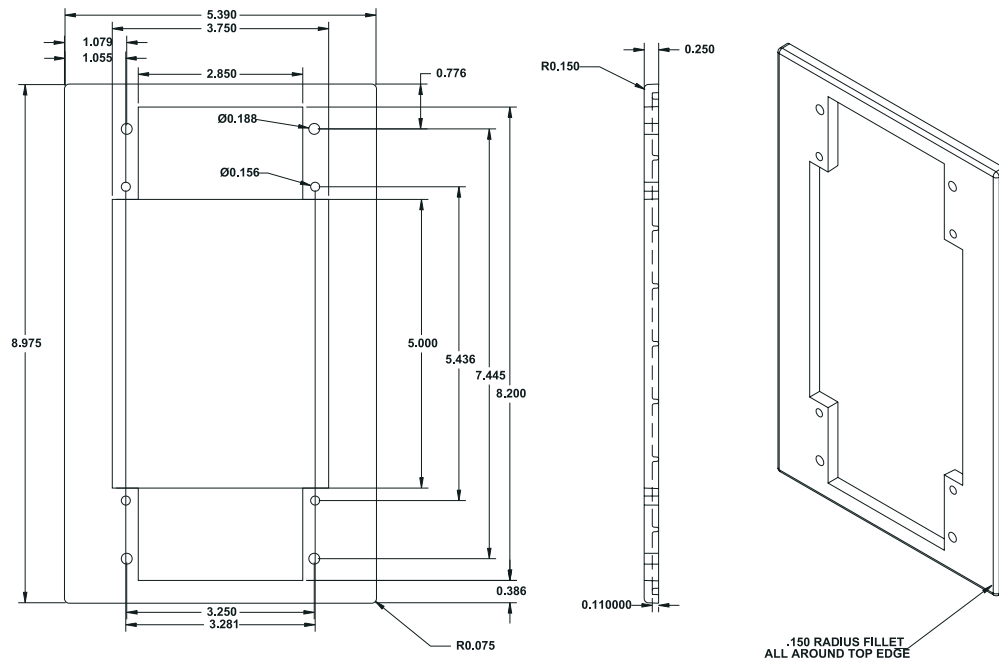
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All dimensions are shown in inches

Figure 14 - Model 528FBB Flush Mount Back Box  
 It is shown assembled with the Model 528VFM.  
 It can also be used with the horizontal Microphone Station, the Model 528HFM





All dimensions are shown in inches

Figure 15 - 528 Flange

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