



AIR COM

Pilot's Manual

VHF Aircraft Radio

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Please read this manual carefully before using the device.

Observe limitations and safety instructions.

This manual is an essential component of the device and must be kept in a safe place.

Document-ID / Revision-History

This manual covers the following product types:

AC-1 "AIR COM"

Revision History

| <i>Rev.</i> | <i>Date</i> | <i>Status</i> | <i>Author</i> | <i>Changes</i> | <i>Approved</i> |
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Product Support

If you have questions, our product support team will be happy to help you. Contact us via support@air-avionics.com or by phone. Please find details on hotlines and availability online at <http://www.air-avionics.com>

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1.1 Introduction

AIR COM or “AC-1” is a small, lightweight VHF transceiver module for the VHF airband.

AC-1 is capable of sending and receiving transmissions in the aviation voice band, from 118.000 to 136.975 MHz with 25kHz or 8.33kHz steps.

AC-1 has the ability to monitor standby COM frequencies and to record transmissions for replay. It features intercom functions and offers a broad range of installation options.

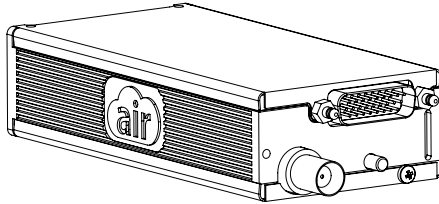


Figure 1.1: AIR COM (AC-1) device.

2.1 Pilot Controls

AC-1 does not feature any frontend pilot controls.

AC-1 is powered on and controlled through a suitable external control device, for example, an *AIR Avionics* - AIR Control Display.

Additional external peripherals such as pushbuttons, microphones, and headphones or speakers are normally used.

2.2 Basic Transmitter Control

The transmit function of the transmitter is controlled by a discrete input on the device. The input can, for example, be triggered using a “Push-To-Talk” button, the then so-called PTT-Pushbutton.

2.3 Volume, Channel-Selection, and Advanced Functions

Channel selection, volume control, intercom, and transmission replay functions are controlled using an external control device.

For details on basic COM operations such as channel selection or volume control, please consult the operation/pilot’s manual of the control device.

The familiarization of specific installation conditions in an aircraft, e.g. number of connected devices and the system topology is recommended before using AC-1.

3.1 Receiver Functions

AC-1 receives transmissions in the aviation voice band. Up to two channels (“STANDBY” and “ACTIVE” channel) can be monitored simultaneously.

The Audio volume of both channels can be set up individually.

3.2 Transmitter Functions

3.2.1 Sending Transmissions

AC-1 sends transmissions on the selected “ACTIVE Channel”.

Push the **PTT-Pushbutton** to start the transmission. To end the transmission, release the **PTT-Pushbutton**.

3.2.2 Stuck PTT Function

AC-1 contains software that prevents channel blocking by a permanently pushed or stuck **PTT-Pushbutton**.

When the **PTT-Pushbutton** is exercised longer than 28 seconds, a warning message indicating an imminent shut-down of the transmitter is sent to external control devices and, therefore, annunciated to the flight crew.

If the **PTT-Pushbutton** is exercised longer than 33 seconds, the transmit function is disabled until the **PTT-Puhbutton** is released again. A message is transmitted to external control devices, where the “Stuck PTT” status is annunciated to the flight crew.

3.2.3 Duty Cycle Limitations

Due to technical reasons, as all aircraft radios, AC-1 is not capable of continuously transmitting at full output power.

A high transmission duty cycle leads to higher internal device temperatures, mainly because during transmission, energy from the transmitter dissipates as heat. Although AC-1 features a sophisticated housing design with regards to thermal management, the unit may still overheat if transmitting extensively at higher ambient temperatures.

In the case of an overheat condition, the transmitter output power is temporarily reduced. The output power may, for example, be reduced to 40% of its nominal value which reduces the achievable communication distance to two thirds. As soon as the temperature reverts back to a normal value, the transmitter output is restored to its full nominal power.

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Abnormal Operation

If a failure of internal components (like the transmitter or the receiver) or external components (like a speaker or a microphone) is detected, information about the failure and the system status is transmitted to the external control device.

Not all failures can be detected. It is possible that unannounced failures occur.

Failures are possible, that result in a loss of communication. In such an event, the flight crew is required to perform standard procedures mitigating the involved risks. Appropriate training of such procedures is advised prior to using AC-1.

AC-1 features field updateable software. Updates are performed using suitable control devices. For details on the update process, please consult the operating/pilot's manuals of these control devices, for example, the AIR Avionics AIR Control Display 57 (ACD-57).