

Intercommunication System Control

Model A301-412

The A301-412 is Andrea Systems newest audio control unit. It is a single user control and is designed to be the basic control unit for a multi-position intercommunication system.



Model A301-412

**THIS UNIT IS USED ON THE
FOLLOWING AIRCRAFT:**

- Bell Helicopter 412

ADVANCED PERFORMANCE

- Low level or high level mic inputs
- 350 mW output to low impedance (8 Ohm) headsets
- 100 mW output to high impedance (150 Ohm) headsets
- Limited operation down to 10 VDC input voltage for communications during engine start

READY FOR TODAY'S ENVIRONMENT

- Environmental testing to RTCA DO-160D:
 - Helicopter environment / levels
 - EMI and lightning including multi-stroke and multi-burst. Tested to A2G22 and A2C3 levels

CUSTOMIZATIONS

- Custom panel markings
- Red, White, or Night Vision lighted panel
- Transmitter outputs can be preset at the factory to customer specified levels

ADVANCED FEATURES

- FAA TSO-C50c approved
- Eight (8) position rotary selector switch for control of six (6) transmitters/receivers and two (2) interphone lines
 - Second ICS line (PVT) allows flexible aircraft configurations for boom operator or other private communications
- Eleven (11) individually selectable audio monitor inputs
 - 2 fixed level inputs (not controlled by volume)
 - 2 adjustable with RADIO volume control
- Microphone AGC for consistent talk quality
- Adjustable VOX with ON/OFF
- Dual, stacked volume controls for individual radio and ICS levels
- Standard CVR (Cockpit Voice Recorder) output
- Emergency switch selects backup power supply and amplifiers with limited capability

ADVANCED DESIGN

- Digital switching of audio paths using solid state switches and hardware CPLD controls. Removes mechanical contact noise from the audio path.
- Immediate startup. No microprocessors or software delays.
- EMI and lightning protected using EMI connectors and Transient Voltage Suppression (TVS) devices.

EXTREME RELIABILITY

- MTBF exceeds 10,000 hrs*
 - Front Panel switch selection of redundant power supply, mic amp and headset amp for limited emergency operation with a primary failure. Emergency channel failure rate is less than 1×10^{-5} *
 - Modular construction with plug together boards maximizes internal interconnect reliability
- *calculated using Mil-HDBK-217, environment A_{RW}

C46-5375 Rev E

SPECIFICATIONS*

GENERAL CHARACTERISTICS

- FAA TSO C50c approved
- Qualified to DO-160D Environmental Cat.
[B2]XBBC[RG1]XXDFSZZ[UUR]M[(A2C3)(A2G22)]XXA

CONNECTORS

- Unit Connectors - EMI filtered
 - 50 Pin D (Male) with shell ground fingers
 - 15 Pin D (Male) with shell ground fingers
- Mating Connectors (or equivalent)
 - 50 Pin M24308/2-5 F (Female)
 - 15 Pin M24308/2-2 F (Female)

PHYSICAL CHARACTERISTICS

- Size / Weight
 - 5-3/4" W x 2-5/8" H x 4.75" D
 - 1.99 lbs Max.
- Panel Mount via Dzus fasteners

POWER REQUIREMENTS

- Normal Power Requirements @ 28 VDC
 - No signal - 2.5 W Max.
 - 250 mW Headset Output - 5.5 W Max.
- Emergency Power Requirements
 - No signal = 30 mA
 - 60 mW Headset Output - 70 mA Max.
- Panel Lighting
 - Standard panel has embedded lights
0.25A @ 27.5 VDC

VOLTAGE LEVELS

- 5 Ohm Mic input: 0.1 to 1.0 mV
- High Level Mic input: 0.1 to 1.0 V
- ICS, PVT Interphone lines: 2.8 V
- Receive line inputs: 4.5 V
- Transmitter Outputs: .1 to 1 V (adjustable)

MICROPHONE AMPLIFIER PERFORMANCE

- Distortion - 3% Max.
- Freq Response
 - +/- 3 dB 350 to 6000 Hz
- AGC
 - Reference 2.8 V output for input variation of 10 to 1
 - Attack time - 200 mS
 - Release time - approx 6 sec.
 - Slope - 3 dB Max. output change for 20 dB input change
- VOX
 - Attack Time - 15 mS
 - Release Time - 500 mS to 1 Sec
 - Sensitivity - up to 250 mV

TALK CAPABILITIES

- Transmitters: up to 6
- ICS lines: up to 2

MONITOR CAPABILITIES

- Receivers/ Audio inputs: up to 16
 - 11 with individual control
 - 4 direct inputs
 - 2 adjust with Radio volume
 - 2 fixed level for alerts or warnings
- 1 Aux/PA

CONTROLS

- Rotary Switch - Eight position, six for transmitters/receivers and two for ICS
- 11 Toggle switches to select audio input lines for monitoring
- Stacked dual volume control for individual adjustment of Radio input levels and ICS levels
- Normal / Emergency Locking lever switch
- VOX On/Off and VOX level

INTERNAL ADJUSTMENTS

- 6 Internal individual adjustments of the audio output level to each of the six associated transmitters

IMPEDANCES

- Microphone
 - 5 Ohm dynamic or 200 Ohm - 2.2 K High level Mic
- Headset
 - 8 Ohm OR
 - 150 Ohm
- Interphone Line
 - 600 Ohms, internally furnished
- Transmitter Outputs
 - 100 Ohms, supplied by aircraft installation
- Receiver Inputs
 - 600 Ohms, with Receivers 1-4 internally supplied
- CVR Output
 - 5 K Ohm aircraft load

SIGNAL ISOLATION

- 60 dB minimum between output or input lines

CVR OUTPUT

- 1.6 Vrms +/- 0.2 V, Receiver Level, adjustable via vol (Radio) and 450 mV RMS +/- 50 mV, Mic level

HEADSET AMPLIFIER PERFORMANCE

- Distortion - 3% Max.
- Frequency Response
 - +/- 3 dB 350 to 6000 Hz
- Headset Output Power Levels
 - Into 8 Ohms, 350 mW Min.
 - Into 150 Ohms, 100 mW Min.
 - In emergency mode, into 150 Ohms with 4.5 V input the output will be 60 mW Min.

* Specifications subject to change without notice