

# AF 250I

Powerful 250 watt IP amplifier



Fully  
IP-based

250 W  
power

Rugged  
housing

Line  
monitoring

Designed  
for 70 V and  
100 V PAs

## Strong performance

The AF 250I provides a high output range and various connections – from a microphone input to a relay output. That's why the amplifier is universally suitable for any size of application – even for complex public address and Intercom solutions. In order to avoid cabling costs and be more flexible, the AF 250I is specifically optimised for installation either in a 19-inch rack or on-site.

Thanks to its high flexibility, the AF 250I is applicable in the most diverse areas where a reliable and powerful public address is needed. Thereby, this amplifier covers all requirements from public service facilities, auditoriums and waiting rooms to high noise industrial environments, tunnels and office buildings.

## Features and highlights

- 250 watts total output power
- Loudspeaker connectors for 70 V or 100 V powered loudspeakers
- Class-D amplifier optimised for high efficiency at low operating temperatures
- Short-circuit and over-range protected
- Line monitoring between amplifier and Intercom Server
- Line monitoring at the loudspeaker output (requires licence L-AFLM)
- 16 kHz transmission bandwidth for highest speech intelligibility
- Easy integration in existing Intercom systems
- High level of reliability
- Support of Intercom station features (e.g. connection monitoring, function monitoring and DSP tone)
- Installation in a 19-inch rack or on-site
- Rugged housing made of metal

# AF 250I

## Technical specifications



### Technical data

<b>IP rating:</b>	IP20 (acc. EN 60529)
<b>Output power:</b>	250 W <sub>RMS</sub>
<b>Power supply:</b>	main power supply: 100–240 VAC (50–60 Hz, 320 W) backup power supply: 24 VAC (20–28 VDC, max. 15 A)
<b>Protocol:</b>	IoIP® protocol, based on UDP/IP
<b>Cabling:</b>	min. Cat. 5
<b>Connection:</b>	2 shielded RJ45 modular jacks (IP uplink and IP downlink) pluggable screw terminals (0.14 mm <sup>2</sup> –1.5 mm <sup>2</sup> ): outputs, inputs, microphone, line out pluggable screw terminals (0.25 mm <sup>2</sup> –2.5 mm <sup>2</sup> ): loudspeaker, DC input AC power supply (IEC-60320-C14)
<b>Loudspeaker output:</b>	100 V, switchable to 70 V
<b>Microphone input:</b>	nominal level 14 mV at 3.3 kΩ –43 dBV/Pa (2.5 V feeding voltage)
<b>Line output:</b>	nominal level 0 dBu (0.775 V)
<b>Inputs:</b>	2 inputs for floating contacts (detection of 5 input states)
<b>Outputs:</b>	relay output (changeover contact): 30 V/1 A, min. 10 <sup>5</sup> switch cycles
<b>Control input:</b>	0–10 V, for remote volume control
<b>Frequency response:</b>	50 Hz to 15 kHz (–3 dB)
<b>Total harmonic distortion (THD+N):</b>	< 0.2% at 1 kHz at 250 W
<b>Operating temperature range:</b>	–5 °C to +??° °C (23 °F to +??° °F)
<b>Storage temperature range:</b>	–20 °C to +55 °C (–4 °F to +131 °F)
<b>Relative humidity:</b>	up to 95%, non-condensing
<b>Dimensions (W x H x D):</b>	401 x 44 x 251 mm (15.79 x 1.73 x 9.88 in)
<b>Weight incl. package:</b>	approx. 3,500 g (7.7 lbs)

### Extent of supply

- Amplifier
- Short reference

### Line length in LAN

The maximum line length of Cat. 5 cabling in a LAN is 100 m (328 ft) – e.g. from switch to amplifier.

### Power cable

For the AF 250I, the power cable with country-specific plug is available separately:

- C-KAB-C13-AU (Australia)
- C-KAB-C13-EU (Europe)
- C-KAB-C13-UK (United Kingdom)
- C-KAB-C13-US (USA)

# Requirements

## System requirements

### Intercom Server

- GE 800 (min. PRO 800 6.0) with G8-IP (min. G3-8-IP 4.0B01)
- GE 300 (min. PRO 800 6.0) with G3-IP (min. G3-8-IP 4.0B01)
- IS 300 (min. PRO 800 6.0)
- VirtuoSIS (min. PRO 800 6.0)
- GE 700 with GE700-UPG (min. PRO 800 6.0) with G7-DSP-IP

### Configuration software

- min. CCT 800 6.0

## Network requirements

### IP addresses and ports

- For the AF 250I, the DHCP function is available. If DHCP is not used, the AF 250I must have a fixed IP address.
- In case of a changing public IP address, dynamic registration of an AF 250I is possible.
- Communication from the program IP Station Config is done via port 16399 (not configurable).
- Communication from the AF 250I to the Intercom Server (UDP protocol) is done via port 16400 (configurable).

### QoS requirements

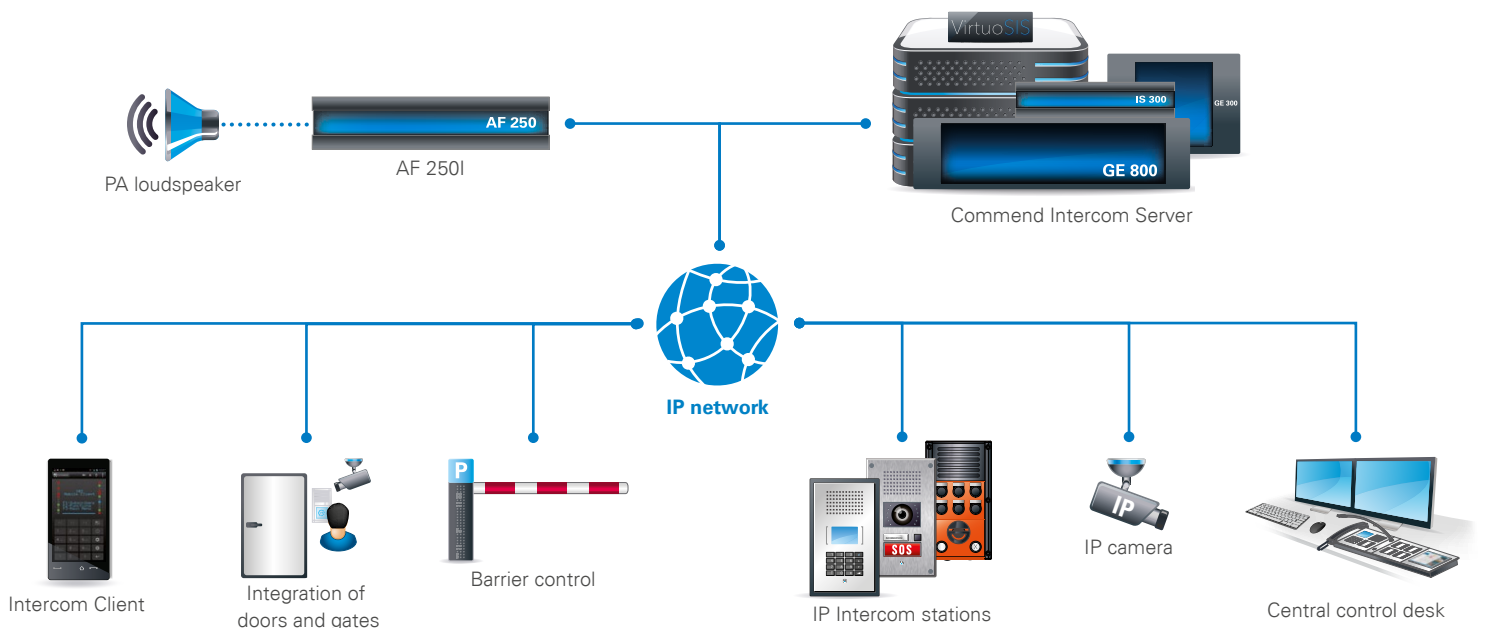
- One-way delay max. 100 ms
- Jitter max. 50 ms
- 0% packet loss for perfect audio quality

### Bandwidth

- Required bandwidth incl. protocol overhead per AF 250I for upload and download each speech and data (no video): 96 kBit/s
- Audio is compressed according to the G.722 standard.

# System overview

The following diagram shows an example of the integration of an AF 250I amplifier in an IP network.



# AF 250I

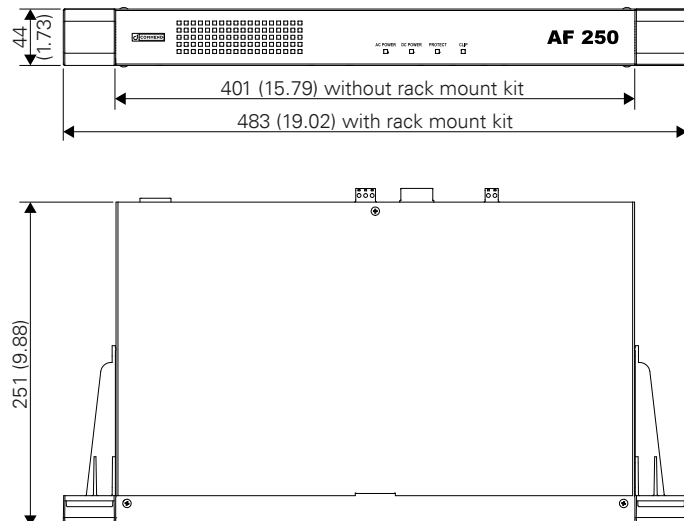
## Installation instructions

### Mounting instructions

- Do not expose the amplifier to extreme temperatures (see “Technical data” on page TE | 1).
- Observe the precautions for handling of electrostatic sensitive devices.
- The amplifier may only be installed by authorised service engineers.
- Make sure the amplifier is provided with sufficient ventilation in order to prevent overheating.
- If a DC power supply is used, the amplifier has to be grounded via a proper cable.
- For wall mounting, a wall mount kit PF-WM is required (available separately; for mounting, see short reference “PF-WM”).
- For rack mounting, a rack mount kit PF-RM is required (available separately; for mounting, see short reference “PF-WM”).

### Dimensions front panel

Measuring units in mm (in), not to scale!



### LED status indication

#### LED “AC POWER”

- Permanent green: main power supply applied

#### LED “DC POWER”

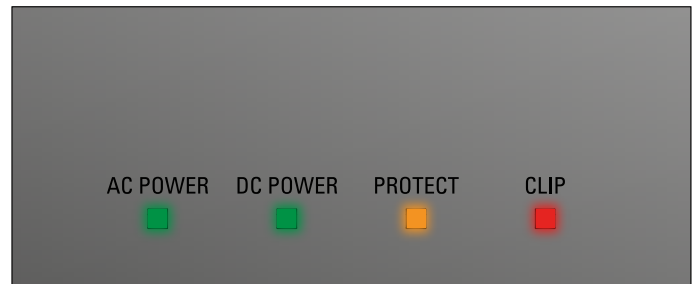
- Permanent green: backup power supply applied
- Green blinking: only the PoE power supply applied

#### LED “PROTECT”

- Permanent yellow: amplifier fault detected
- Yellow blinking: loudspeaker output fault detected by means of line monitoring

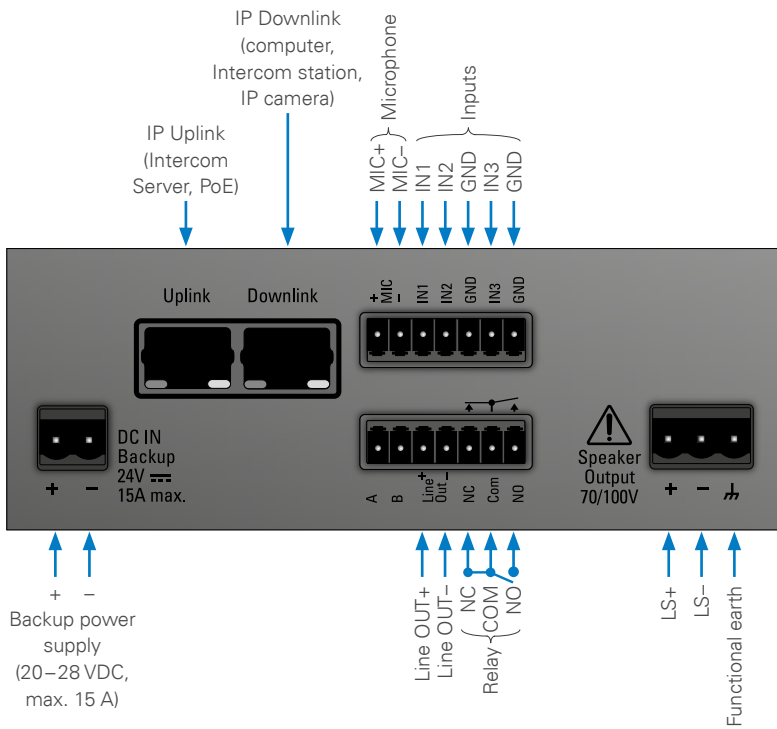
#### LED “CLIP”

- Flickering red: clipping detected

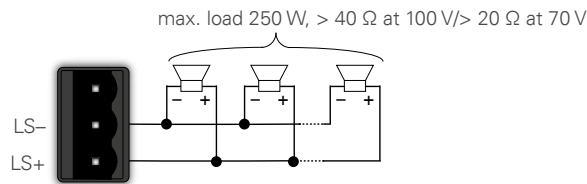


## Connection

### Connection diagram



### Connection loudspeaker



## Volume settings

The volume can be controlled via CCT 800 at **Subscriber > Audio - Features**.

## Mounting

The AF 250I can be mounted using a wall and desk mount kit or a rack mount kit:

- Wall mount kit PF-WM (not included in extent of supply; for mounting, see short reference "PF-WM")
- Rack mount kit PF-WM (not included in extent of supply; for mounting, see short reference "PF-RM")

# AF 250I

## Complementary information on line monitoring

### Functionality

With line monitoring, it is possible to detect the following errors at the loudspeaker output:

- **Short-circuit** (impedance  $< 20 \Omega$  at 100 V/ $< 10 \Omega$  at 70 V)
  - ATTENTION: Cable loop resistance**  
The loop resistance for the loudspeaker cable must be lower than  $20 \Omega$  at 100 V/ $10 \Omega$  at 70 V in order to be able to detect short-circuits.
- **Disconnection** (impedance  $> 1 \text{ k}\Omega$ )
- **Impedance changing** ( $\pm 10\%$ ,  $\pm 20\%$ ,  $\pm 30\%$ ,  $\pm 40\%$  and  $\pm 50\%$ )

Line monitoring is based on an impedance measurement with adjustable tolerance values of  $\pm 10\%$ ,  $\pm 20\%$ ,  $\pm 30\%$ ,  $\pm 40\%$  and  $\pm 50\%$ . These values obviate against errors depending on temperature value changing, deterioration and so on. During the impedance measurement, a pilot signal (67 Hz with  $-23 \text{ dBFS}$ ) is put out. The measurement is also carried out during audio output. An error is displayed with measurement cycles every 60 seconds.

### System requirements

#### Hardware

- The amplifier must be grounded at the desired screw terminal.

#### Software

- Configuration software min. CCT 800 6.0
- Intercom Server software min. PRO 800 6.0
- Licence "L-AF-LM"

### Configuration

#### ATTENTION: Required configuration

For the configuration of line monitoring, an active connection between CCT 800 and the amplifier is required.

- **Station Properties > AF 250I > tab Line Monitoring**
- Activate the checkbox **Line Monitoring**.
- In the drop-down list **Line**, select the used line type (" $70 \text{ V}$ " or " $100 \text{ V}$ ").
- In the drop-down list **Tolerance**, select the tolerance value for measurements. Within this tolerance, a deviation from the reference value will not be interpreted as error. It is recommended to set the tolerance value to 30%.
- Click on **Measure ...** to measure the impedance of the loudspeaker line. The measurement is displayed in the filed "Impedance".
- Click on **Accept ...** to set the current measured value as nominal value. The current nominal value is displayed in the filed "Impedance nominal value".
- After the configuration, send the CCT 800 configuration to the Intercom Server.

### Quality tested. Reliable. Smart.

COMMEND products are developed and manufactured by Commend International in Salzburg, Austria.

The development and manufacturing processes are certified in accordance with **EN ISO 9001:2008**.



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