ET 908H

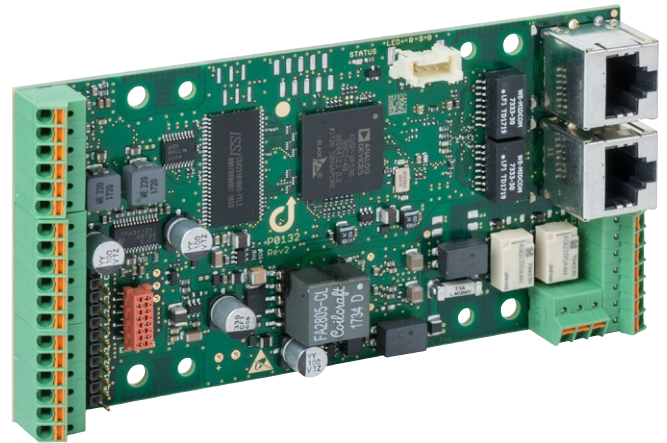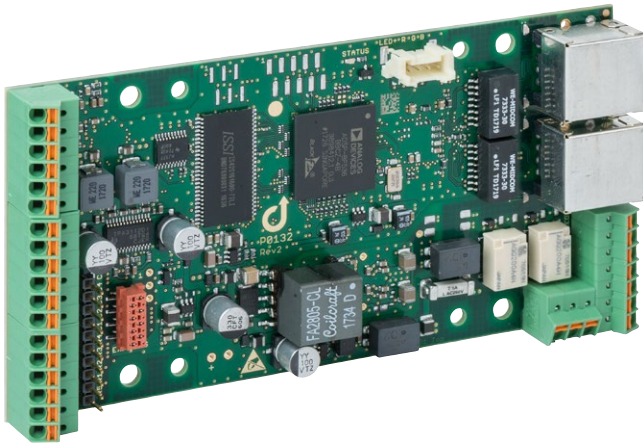## Hybrid modules for integration in housings and panels

Ready for Symphony Cloud

c US

High volume

OpenDuplex® technology

16 kHz eHD Voice

IoIP® and SIP

The perfect built-in solution

The hybrid modules ET 908H (RJ45 jacks mounted horizontally) and ET 908H-1 (RJ45 jacks mounted vertically) have been developed for installation in existing housings or for construction of special Intercom stations. As they support both IoIP connections and SIP solutions (hybrid), the hybrid modules can easily be integrated into any Voice over IP system as well as any existing Commend Intercom system. The desired operation mode is selected via the configuration software.

Applications for the hybrid modules are all kinds of call and emergency call stations, where the stations are built-in and only the external call buttons are used. This means, special solutions for e.g. emergency call pillars, elevator cabins, ticketing machines or barriers at entrances and exits can be created, which optimally satisfy function and optical appearance of the customer specifications.

Furthermore, the hybrid modules are perfectly suited for use as door stations at entrance areas and gateways due to two integrated relay outputs.
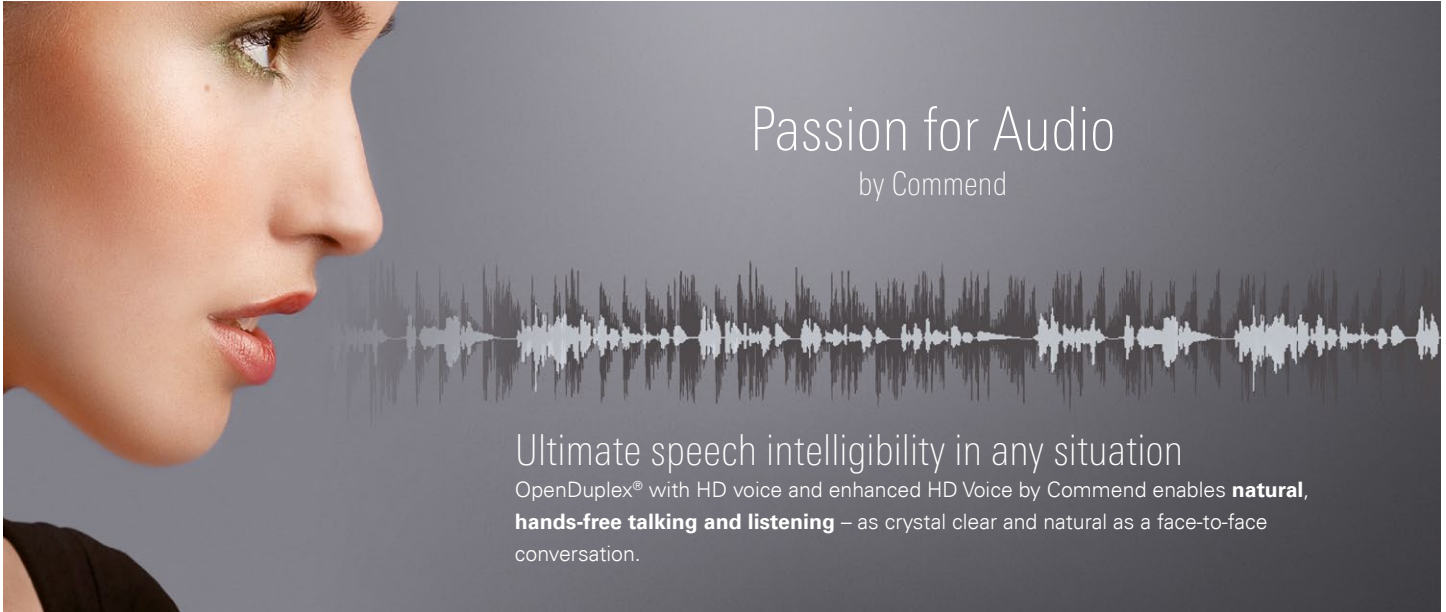
Ready for Symphony Cloud
The hybrid modules can be connected to Symphony Cloud and use its services. Symphony Cloud is the world's first cloud-based Intercom platform with "Privacy and Security by Design". Visit our website to find out about the services currently available and if they are already offered in your country.
cloud.commend.com

Features and highlights

– Built-in inputs and outputs for connection of e.g. door openers – can be extended via expansion plug
– Hybrid modules for custom designed stations
– Special audio functions ensure superior speech quality in any situation
– Sound output or playback of pre-recorded messages can be used to provide information and reassurance to callers
– Ready for connection of induction loop systems, which enable persons wearing hearing aids with an induction loop to receive Intercom audio signals in clear, uninterrupted quality
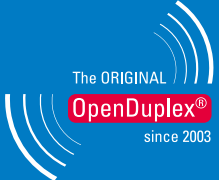
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Passion for Audio
by Commend

Ultimate speech intelligibility in any situation

OpenDuplex® with HD voice and enhanced HD Voice by Commend enables **natural, hands-free talking and listening** – as crystal clear and natural as a face-to-face conversation.

The ORIGINAL **OpenDuplex®** since 2003	**IVC**	🔊		🎤✔ 🔊✔
Natural communication	Intelligent Volume Control	High volume	Background noise suppression	Loudspeaker/microphone surveillance

Audio // Basics

eHD Voice (IoIP)	Enhanced HD Voice by Commend transfers the audio signal at a bandwidth of **16 kHz**, thus capturing the entire frequency spectrum of the human voice.
HD Voice (SIP)	HD Voice by Commend transfers the audio signal at a bandwidth of **7 kHz**
Amplifier	Highly efficient class-D amplifier with 10 W

Learn more
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Audio // Functions

	IoIP	SIP
Dynamic **background noise suppression** virtually eliminates all ambient noise		▬
Loudspeaker-microphone surveillance – ensures the availability of the Intercom station while reducing the need for manual verification of its functionality	▬	▬
Audio monitoring – fully automated emergency calls triggered by defined noise levels for more security	▬	▬
Peer-to-peer audio – reduces network and server load to ensure efficient use of resources	▬	▬
Audio recording and lip synchronous audio/video recording of conversations for documentation and evidence keeping purposes	▬	▬ [1]
Conference call function for simultaneous talking with multiple conversation partners	▬	▬
Speech activity detection senses when calls are finished (no microphone signal) and terminates the connection automatically	▬	
Simplex mode for applications requiring controlled communication – e.g. for security solutions based on the "push-to-talk/release-to-listen" method	▬	
OpenDuplex® for natural, hands-free communication	▬	▬
IVC (Intelligent Volume Control) automatically adjusts the device's volume setting to the ambient noise level	▬	▬
Public address functions	▬	▬ [2]

[1] Audio recording option on a compatible VMS via ONVIF Profile S.
[2] Public address functions via multicast or ONVIF Profile S announcements from a compatible VMS.

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ET 908H
Technical specifications

Technical data

Microphone input:	possibility for connection of an electret condenser microphone or a dynamic microphone electret condenser microphone: nominal –43 dB/Pa (feeding voltage: 2.5 V at 3.3 kΩ)
Loudspeaker output:	10 W at 4 Ω/6 W at 8 Ω max. 6.3 V_{eff} (volume level "11")
Ext. microphone, loudspeaker:	possibility for connection of e.g. a headset/handset EP output: max. 880 mV$_{eff}$ (volume level "11") , R_i = 200 Ω EM input, nominal level: 14 mV on 3.3 kΩ (feeding voltage 2.5 V)
Call button:	possibility for connection of 3 single buttons or a keypad
External LED:	possibility for connection of an RGB-LED
Inputs:	3 inputs for floating contacts (IoIP: detection of 5 input states)
Outputs:	2 relay outputs (switch-over contacts) max. 60 W (DC)/37.5 VA (AC) max. 2 A max. 60 VDC/30 VAC expected life: min. 5×10^4 (2 A), 10^5(1 A)
Line input:	for feed-in of audio (e.g. music, radio conference) nominal level: 0 dBu (0.775 V) at 10 kΩ
IoIP audio bandwidth:	16 kHz
SIP audio bandwidth:	7 kHz
Operating temperature range:	–40 °C to +70 °C (–40 °F to +158 °F)
Storage temperature range:	–40 °C to +70 °C (–40 °F to +158 °F)
Relative humidity:	up to 95%, not condensing
Connection:	spring clamp terminals (conductor cross-section: 0.2 – 1.5 mm²) expansion plug, e.g. for EB2E2AHE IP uplink: shielded RJ45 modular jack IP downlink: shielded RJ45 modular jack
Power supply:	DC power supply: 24 VDC (15 – 28 VDC), max. 1.0 A @ 15 V, max. 0.54 A @ 28 V PoE (Power over Ethernet): IEEE 802.3af/Class 0, IEEE 802.3at/Type 1
Power consumption	idle 2.6 W, max. 15 W (depending on configuration)
Device class:	ES1, PS2 as per IEC/EN 62368-1
Network cabling:	min. shielded Cat. 5
Protocols (IoIP):	IPv4, UDP, DHCP, RTP, RTCP, SNMPv2c, SNTPv4
Protocols (SIP):	IPv6, IPv4, TCP, UDP, HTTP (RFC 2617, RFC 3310), RTP (RFC 3550), TLS, SRTP, RTCP, DHCP, STUN, TFTP, SDP (RFC 2327), SIP (RFC 3261), SNMPv2, URI (RFC 2396), DTMF Decoding (RFC 2876, RFC 2833), SIP User Agent (UDP RFC 3261), SIP Refer Method (RFC 3515)
Approvals and compliances:	EN 61000-6-2, EN 61000-6-3, EN 55032 Class B, EN 55035 FCC Part 15 Class B, ICES-003 Class B, EN 62368-1, IEC 62368-1, CB-Scheme, UL 62368-1 (recognized E351589)
Codecs (SIP):	G.711 a-Law, G.711 µ-Law, G.722
Data rate:	2 x 10/100 MBit/s (Full/Half Duplex) auto MDIX
Dimensions (W x H x D):	ET 908H: 65 x 130 x 18 mm (2.56 x 5.12 x 0.71 in) ET 908H-1: 65 x 130 x 22 mm (2.56 x 5.12 x 0.87 in)
Weight:	approx. 170 g (0.37 lbs)
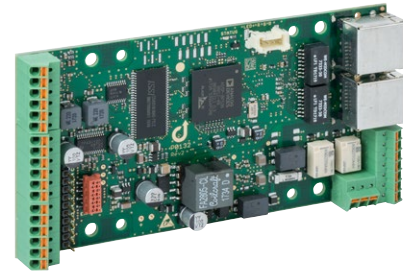
Line length in LAN

The maximum line length of Cat. 5 cabling in a LAN is 100 m (328 ft) – e.g. from switch to ET 908H.

Extent of supply

- Hybrid module
- Mounting kit (4 fixing spacers with M3 thread, red LED)
- MIC 480 (ET 908HMI and ET 908HMI-1 only)
- Device identification document
- Open source compliance information
- Short reference

System requirements

IoIP

Server
- GE 800 (min. PRO 800 6.3) with G8-IP (min. version 6.6A) or
- GE 300 (min. PRO 800 6.3) with G3-IP (min. version 6.6A) or
- IS 300/G8-IP-32 (min. PRO 800 6.3, min. version 6.6A) or
- S3/S6/VirtuoSIS (min. version 7.1)

Configuration software
- CCT 800 (min. version 7.1)
- IP Station Config (included in setup of CCT 800)

SIP
- S3/S6/VirtuoSIS (min. version 7.1) or
- Compatible SIP server (see compatibility list "**Interoperability SIP**") or
- Serverless operation

Device firmware
- IoIP-Device (min. version 7.2)
- SIP Series (min. version 3.8.1, build 61)

ATTENTION
Downgrading to firmware version SIP Series 3.9 build 24 or lower is not supported.

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Requirements to the network for use as SIP device

Ports

– The configuration via the web interface is done via TCP port 80 (cannot be configured).
– The communication from the SIP device to the SIP server is done via the following ports (both are configurable):
    – SIP: UDP port 5060
    – RTP: UDP port 16384 (incoming)

Requirements to the network for use as IoIP device

IP addresses and ports

– For the ET 908H, the DHCP functionality is available. If DHCP is not used, the ET 908H must have a fixed IP address.
– In case of a changing public IP address, dynamic registration of an ET 908H is possible.
– Communication from the program IP Station Config is done via port 16399 (cannot be configured).
– Communication from the ET 908H to the Intercom Server (UDP protocol) is done via port 16400 (configurable).

QoS requirements

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

Bandwidth

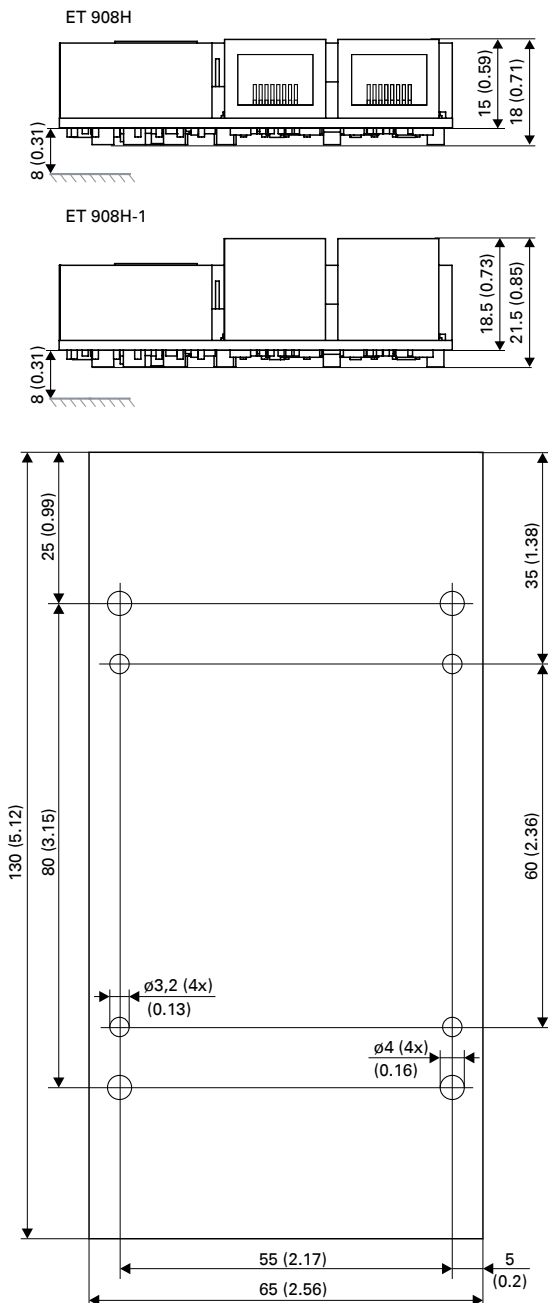For further information on bandwidth, see guideline "**IoIP Technology**".

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ET 908H
Installation instructions

Dimensions

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

ET 908H

ET 908H-1

Safety instructions

- This device shall be installed or replaced by trained and qualified personnel only.
- Conductive housing and mounting plates must be connected to protective earth.
- Before using this device, ensure all cables are connected correctly and are not damaged.
- Disconnect the DC power and all Ethernet cables for any maintenance of the device.
- Allow the device to cool down completely before touching any parts.
- Install or store this device out of the reach of children and do not allow persons unfamiliar with the device and these instructions to handle and operate the device.
- All connected circuits shall fulfil the following requirements:
  - Safety Extra Low Voltage (SELV) and Limited Power Source (LPS) according to IEC/EN 60950-1 or
  - ES1, PS2 circuits and Annex Q (Limited Power Source) according to IEC/EN/UL 62368-1
- All changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Mounting instructions

- The device must be protected against dust, dirt, humidity and eventual environmental influences. The housing must protect against ES1/PS2 circuits .
- Use shielded Ethernet cables only.
- Ensure a minimum distance of 8 mm (0.31 in) to the housing or mounting plate (e.g. using spacer pins included in the extent of supply).
- The max. diameter for spacer pins is 9.1 mm (0.36 in) for plastic and 5.6 mm (0.22 in) for conductive materials.
- 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.

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Connection

NOTE

The connection diagram to the left shows a hybrid module with RJ45 jacks mounted vertically (ET 908H-1).
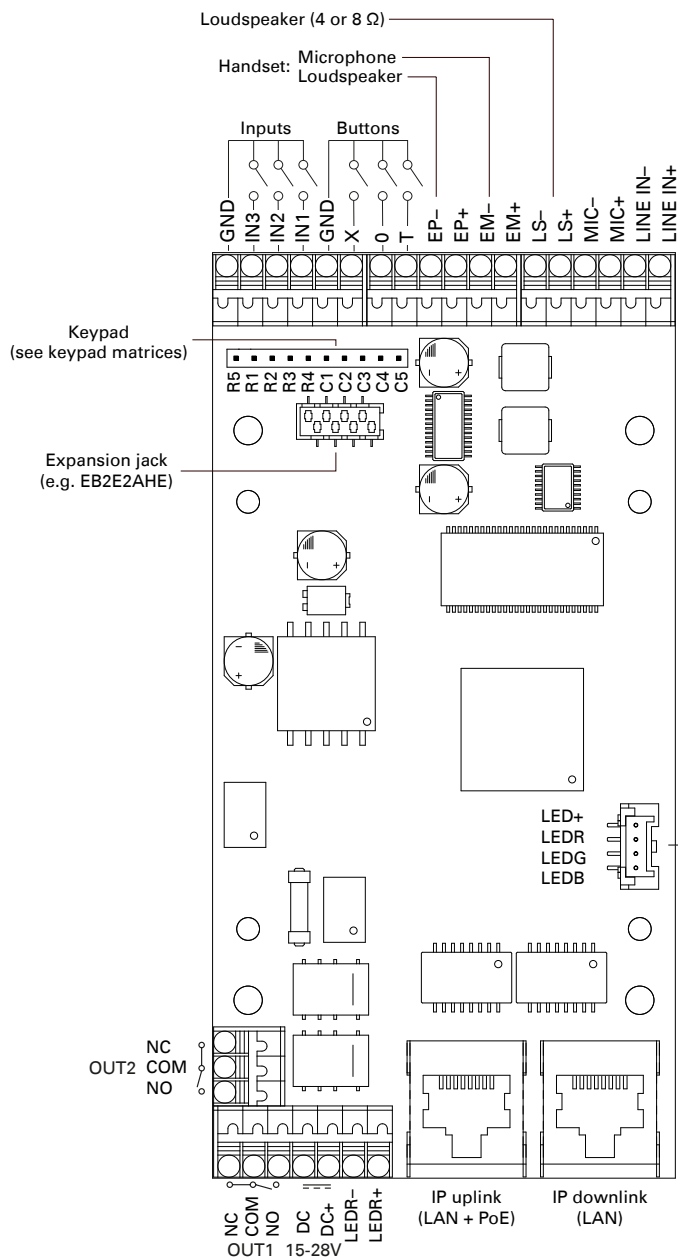
Connection keyboard

Up to 3 buttons at the terminals "T", "0" and "X" or a keypad at the keypad-pin plug (10 pins, distance 2.54 mm/0.1 in).

Reset ET 908H / ET 908HMI (SIP)

During startup, connect the contacts "GND", "T" and "X" (short circuit) until the red LED connected to "LEDR+" and "LEDR−" starts blinking. The hybrid module is reset.
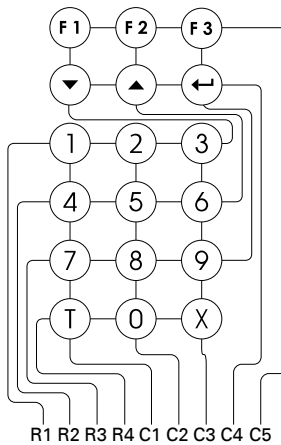
– PoE has to be connected to the RJ45 jack "IP uplink".
– Further IP devices can be connected to the RJ45 jack "IP downlink", e.g. an IP camera.
– Due to the switch function, up to 20 ET 908H can be linked in series (or other IP devices, e.g. PC).
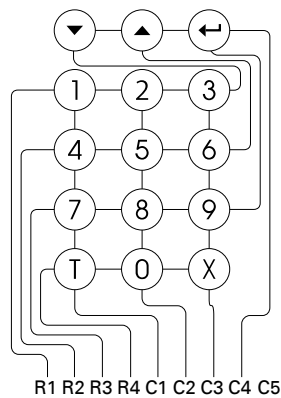
ATTENTION

If multiple ET 908H are connected in series, only the first device can be supplied with Power over Ethernet.
All other devices (connected in series) must be supplied separately by an external power supply unit or PoE injector.
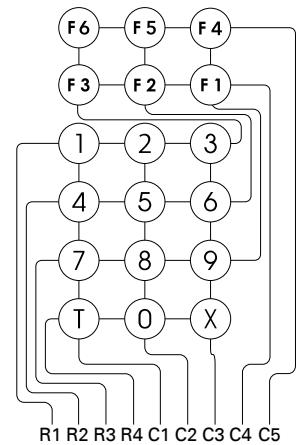
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Keypad matrices

IoIP

SIP – "Enable Full Keypad"

SIP – "Function Buttons"

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 9001:2015**.

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A strong worldwide network

COMMEND is represented all over the world by local Commend Partners and helps to improve security and communication with tailored Intercom solutions.

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