

WS 200V D CM / WS 210V D CM

Digital vandal resistant sub and emergency stations with built-in camera



The Intercom video solution for security critical applications

The stations of this series are designed as vandal resistant sub stations (series WS 200V D CM) and emergency stations (series WS 210V D CM) and are perfectly suited for areas with high requirements on safety. The technology allows excellent speech quality and comprehensibility independent of background noise. The digital 2-wire concept reduces cabling requirements and installation costs. Further it does avoid Ethernet cabling in exposed areas. Permanent function monitoring ensures in-service status and the 3 mm stainless steel front panel with poke protection and special screws protects against vandalism.

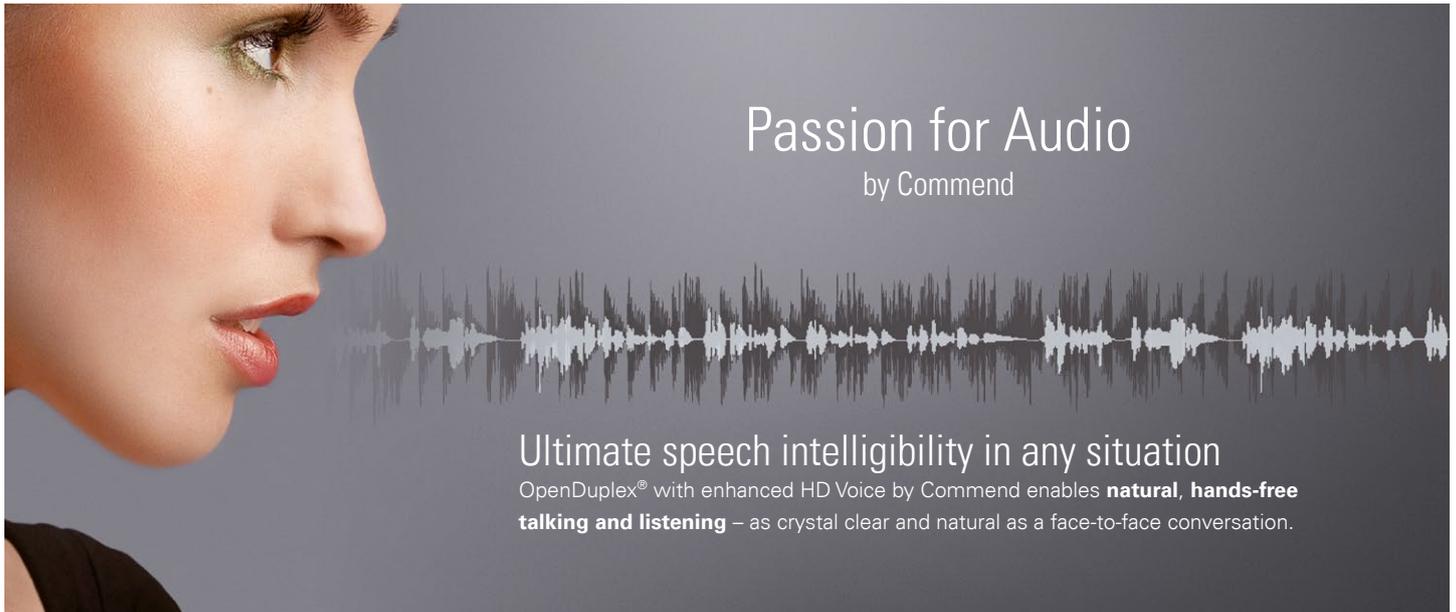
The robust construction provides full protection against water, dirt and dust – protection class IP66. Each button can be allocated to a call number and the relevant label area can be filled in individually. The red emergency call button of series WS 210V D CM is easily visible from a considerable distance and can be pushed quickly in emergency situations.

The series WS 200V D CM includes two different types of digital sub stations with either one or three programmable, back-lit direct dialling buttons (WS 201V D CM, WS 203V D CM).

The series WS 210V D CM includes two different types of digital emergency stations. For the WS 211V D CM station one programmable, back-lit emergency call button is available. The WS 212V D CM station is equipped with an additional programmable, back-lit direct dialling button with label area.

Features and highlights

- Intercom stations with built-in hybrid colour camera (can be used as an IP network camera or as an analogue camera)
- Back-lit direct dialling buttons and label areas
- Extremely robust, weatherproof and vandal resistant construction enables use in outdoor locations and public areas (IP66, IK09)
- Cyclical connectivity and function checks ensure permanent availability of all functions and low manual maintenance requirements
- High volume capacity and superior speech quality, thanks to integrated class-D amplifier and eHD Voice
- Special audio functions ensure superior speech quality in any situation
- The high-sensitivity microphone supports speaking distances of up to 7 m from the microphone, making the device ideally suited, e.g. for wheelchair users
- Sound output or playback of pre-recorded messages can be used to provide information and reassurance to callers
- Integrated inputs and outputs for connection of door openers etc.
- Support of different installation options (flush mounting or surface mounting) ensure maximum flexibility



Passion for Audio

by Commend

Ultimate speech intelligibility in any situation

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

Natural communication

enhanced HD Voice

High volume

IVC

Intelligent Volume Control

Loudspeaker/microphone surveillance

Audio // Basics

| | |
|-----------------------------|---|
| eHD Voice | 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. |
| STI | Speech Transmission Index 0.96 – measured under acoustic laboratory conditions (STI is a standard measure for speech intelligibility; it has a possible maximum value of 1.00, which corresponds to perfect intelligibility) |
| Sound pressure level | High volume up to 99 dB |
| Amplifier | High efficient class-D amplifier with 2.5 W |
| Microphone | Omnidirectional electret condenser microphone for max. 7 m (23 ft) speaking distance |
| Loudspeaker | 2 x 8 Ω loudspeaker with humidity-resistant special membrane type for optimum sound quality |

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Audio // Functions

- 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
- Audio recording** and lip synchronous audio/video recording of conversations for documentation and evidence keeping purposes
- 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**

WS 200V D CM / WS 210V D CM

Technical Specifications

Technical data WS 200V D CM / WS 210V D CM

| | |
|--|---|
| IP rating acc. EN 60529: | IP66 |
| Mechanical impact resistance acc. EN 62262: | IK09 |
| Front panel: | stainless steel, 3 mm (0.12 in) |
| Microphone: | electret condenser microphone polar pattern: omnidirectional |
| Loudspeaker: | special membrane type for optimal sound quality sound pressure level: 85 dB/1 W/1 m (3.28 ft), 2 x 8 Ω |
| Amplifier: | integrated class-D amplifier with 2.5 W |
| Sound pressure level: | max. 99 dB |
| Handset, headset: | EM sensitivity: 14 mV _{eff} EM impedance: 3.3 kΩ / EM supply: 2.5 V EP level: 850 mV _{eff} at 0 dBm ₀ / EP impedance: 200 Ω |
| Input: | 3 inputs for floating contacts (detection of 5 input states) |
| Output: | 2 relay outputs (switch-over contacts) max. 60 VDC, 2 A, 60 W ¹⁾ expected life: min. 5 x 10 ⁴ (2 A), 10 ⁵ (1 A) |
| Line output: | for connection loudspeaker module |
| Call indication: | multifunction LED (colours: red, green, blue) |
| Call button: | back-lit direct dialling buttons with label areas <i>only series WS 210V D CM: large red emergency call button</i> |
| Transmission bandwidth: | 16 kHz |
| Operating temperature range: | -20 °C to +60 °C (-4 °F to +140 °F) |
| Storage temperature range: | -20 °C to +60 °C (-4 °F to +140 °F) |
| Relative humidity: | up to 95%, not condensing |
| Connection: | pluggable screw terminals expansion plug for e.g. EB2E2AHE IP Uplink: shielded RJ45 modular jack analogue video signal: BNC, 75 Ω |
| Power supply: | PoE or external supply 22–24 VAC or 20–35 VDC power consumption: max. 7.4 W |
| Cabling: | star feed, 2-wired, twisted |
| Signalling: | 2B + D (2 x 64 kBit/s speech, 16 kBit/s data) |
| PoE (Power over Ethernet): | IEEE 802.3af power consumption of the terminal device: Class 0 (0.44 W to 12.95 W) |
| Mounting: | flush mount kit WSFB 50V surface mount kit WSSH 50V |
| Dimensions in mm (inch): | with flush mount kit: W 164 (6.46), H 279 (10.98), D 14 (0.55) with surface mount kit: W 164 (6.46), H 279 (10.98), D 50 (1.97) <i>(dimensions without camera dome)</i> |
| Weight incl. package: | approx. 1,700 g (3.75 lbs) |

¹⁾ The relay output may only be connected to a SELV circuit! A SELV circuit as per IEC/EN 60950-1 must be separated safely from a dangerous electrical circuit (e.g. 230 V or 110 V mains power), e.g. by means of double insulation. The SELV circuit must not exceed 60 VDC or 42.4 VAC_{peak} (30 VAC_{eff})!

Extent of supply

- Intercom station incl. short reference, screws, snap ferrite
- *Series WS 210V D CM:* 3 x paste-on label ("SOS" / "EMERGENCY" / "HELP") for emergency call button



Technical data hybrid camera

| | |
|---|---|
| Image sensor: | 1/4 inch colour CMOS sensor |
| Lens*: | focal distance 3.6 mm (0.14 inch), F2.8, fixed aperture, angle 67.4° (diagonal) |
| General data: | automatic adjustment of white fader, colour, contrast- and brightness parameters angle adjustable up to 30° horizontally/vertically |
| Camera illumination/Camera heater: | LED white light illumination and camera heater automatically or manually configurable |
| Configuration: | via CCT 800 or via webinterface <a href="http://<IPAddress>">http://<IPAddress> |
| IP video | |
| Resolution: | 320 x 240 or 640 x 480 |
| Video format: | Motion JPEG (MJPEG) |
| Frame rate: | up to 30 frames per second |
| Protocols: | HTTP, ARP, UDP, TCP, IP, ICMP, DHCP (Client) |
| Ethernet: | 10/100 MBit/s, Full/Half Duplex |
| IP video stream: | standard HTTP URL for display/integration in 3 rd party systems (e.g. webbrowser): <a href="http://<IPAddress>/video.cgi">http://<IPAddress>/video.cgi storage of 5 frames ("snapshots") and call up via <a href="http://<IPAddress>/snapshot-<1-5>.jpg">http://<IPAddress>/ snapshot-<1-5>.jpg , possible |

Analogue Videosignal

| | |
|---------------------------------|--------------|
| Supported video systems: | PAL and NTSC |
| Resolution PAL: | 720 x 576 |
| Resolution NTSC: | 720 x 480 |

* The specifications refer to stations with **min. Rev. AC**

Line length

Using IP video

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

Connection digital station

The indicated line length is valid for standard stations without connected expansion modules and power supply via PoE or external supply.

| Cable type | Line length |
|---|-----------------------|
| Ethernet cable e.g. Cat. 5 Loop resistance: 125 Ω/km Capacity: 44 nF/km (13.4 nF/1,000 ft) | max. 2,800 m/9,186 ft |
| Telecommunication cable e.g. F-YAY; ø 0.6 mm; AWG: 22 Loop resistance: 133 Ω/km Capacity: 100 nF/km (30.5 nF/1,000 ft) | max. 2,800 m/9,186 ft |

Requirements

System requirements

Intercom Server

- GE 800 (min. PRO 800 1.1) with G8-GED (min. G3-8-SUB 3.2)
- GE 300 (min. PRO 800 1.1) with G3-GED (min. G3-8-SUB 3.2)
- IS 300 (min. PRO 800 1.1) with ET 901-D
- VirtuoSIS with ET 901-D
- GE 700 with GE700-UPG (min. PRO 800 1.2) with G7-GED-4 (min. software V02.2)

Attention: Therefore min. DSP800B 1.0 build 3 is required

Configuration software

- min. CCT 800 1.1
- *Using IP video:* IP Station Config (included in setup of CCT 800 1.1)

Network requirements

Bandwidth for video transmission

The following tables show the required **bandwidth** in **Mbit/s** depending on the configured “Quality” and “Max. frame rate” **per IP stream**.

QVGA:

| | | Max. frame rate → | | | | | | | |
|-----------|------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | 1 fps | 2 fps | 5 fps | 10 fps | 15 fps | 20 fps | 25 fps | 30 fps |
| Quality ↓ | 20% | 0.06 Mbit/s | 0.12 Mbit/s | 0.29 Mbit/s | 0.58 Mbit/s | 0.87 Mbit/s | 1.16 Mbit/s | 1.46 Mbit/s | 1.75 Mbit/s |
| | 40% | 0.08 Mbit/s | 0.17 Mbit/s | 0.42 Mbit/s | 0.84 Mbit/s | 1.26 Mbit/s | 1.68 Mbit/s | 2.10 Mbit/s | 2.52 Mbit/s |
| | 60% | 0.11 Mbit/s | 0.22 Mbit/s | 0.55 Mbit/s | 1.09 Mbit/s | 1.64 Mbit/s | 2.18 Mbit/s | 2.73 Mbit/s | 3.28 Mbit/s |
| | 80% | 0.13 Mbit/s | 0.25 Mbit/s | 0.63 Mbit/s | 1.26 Mbit/s | 1.89 Mbit/s | 2.51 Mbit/s | 3.14 Mbit/s | 3.77 Mbit/s |
| | 100% | 0.16 Mbit/s | 0.32 Mbit/s | 0.80 Mbit/s | 1.60 Mbit/s | 2.39 Mbit/s | 3.19 Mbit/s | 3.99 Mbit/s | 4.79 Mbit/s |

VGA:

| | | Max. frame rate → | | | | | | | |
|-----------|------|-------------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|
| | | 1 fps | 2 fps | 5 fps | 10 fps | 15 fps | 20 fps | 25 fps | 30 fps |
| Quality ↓ | 20% | 0.15 Mbit/s | 0.31 Mbit/s | 0.77 Mbit/s | 1.54 Mbit/s | 2.31 Mbit/s | 3.08 Mbit/s | 3.86 Mbit/s | 4.63 Mbit/s |
| | 40% | 0.23 Mbit/s | 0.46 Mbit/s | 1.15 Mbit/s | 2.30 Mbit/s | 3.46 Mbit/s | 4.61 Mbit/s | 5.76 Mbit/s | 6.91 Mbit/s |
| | 60% | 0.31 Mbit/s | 0.62 Mbit/s | 1.54 Mbit/s | 3.08 Mbit/s | 4.62 Mbit/s | 6.16 Mbit/s | 7.70 Mbit/s | 9.24 Mbit/s |
| | 80% | 0.36 Mbit/s | 0.71 Mbit/s | 1.78 Mbit/s | 3.56 Mbit/s | 5.34 Mbit/s | 7.12 Mbit/s | 8.90 Mbit/s | 10.69 Mbit/s |
| | 100% | 0.45 Mbit/s | 0.90 Mbit/s | 2.24 Mbit/s | 4.48 Mbit/s | 6.72 Mbit/s | 8.97 Mbit/s | 11.21 Mbit/s | 13.45 Mbit/s |

WS 200V D CM / WS 210V D CM Installation Instructions

Precautions

- When opening the stations ESD precautions must be observed.
- The stations may only be opened by authorised service engineers.

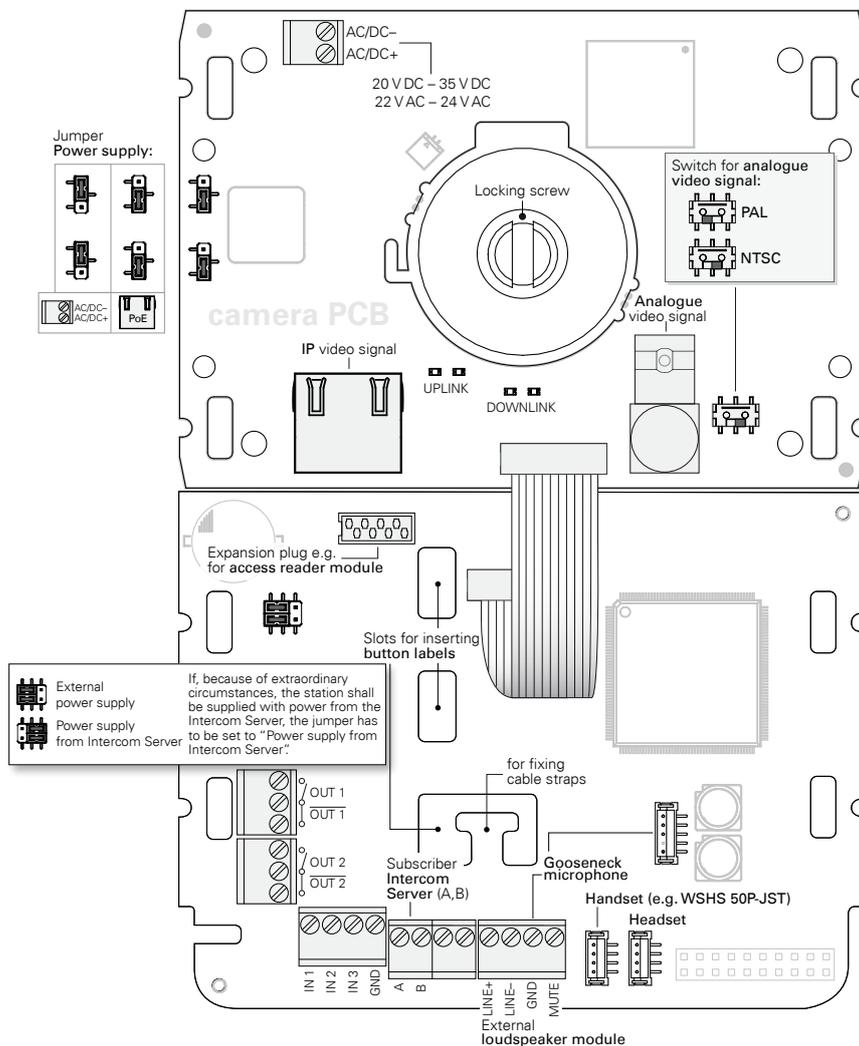
Restricted video

- **Video cannot be switched over WAN networking** via G8-WAN, G3-WAN!

Power supply

- Power supply must be **connected** to the **camera PCB** (PoE or external supply)!
- When using **analogue video** an **isolated power supply unit** is mandatory.
- The device cannot be supplied with **PoE** and **external power supply** **simultaneously**. But if desired, an appropriate configuration of the switch is required (Ethernet port may not be blocked)!

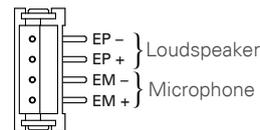
Connection



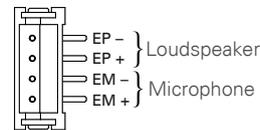
Tilting the camera:

- Unscrew locking screw
- Tilt camera into desired position
- Tighten locking screw

Connection headset:



Connection headset:



Note:

The headset jack has to be activated via an ICX message (see below).

ICX message for connection of headset

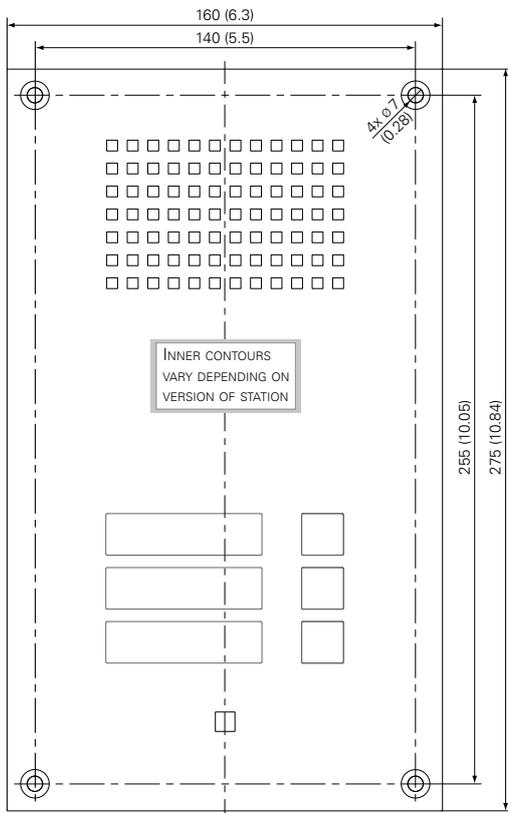
| Microphone / loudspeaker | Task | Type | Data (variable length) | Server-SW |
|--|------|------|------------------------|-------------|
| Switchover microphone / loudspeaker (subscriber) | 40 | 92 | TTTT 050Z | Pro 800 2.1 |

Variable TTTT → 4-digit call number of the subscriber

Variable Z → 0 = deactivate; 1 = activate; 2 = toggle

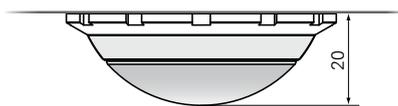
Dimensions front panel

Front panel thickness: 3 mm (0.12")
 Measuring units in mm (inch), not to scale!



Dimensions camera dome

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



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**.



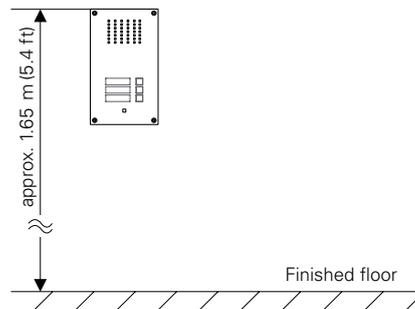
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Mounting instructions

- Do not expose the station to extreme temperature (see "Technical Data").
- For flush mounting a flush mount kit WSFB 50V (available separately) is required.
- For surface mounting a surface mount kit WSSH 50V (available separately) is required.

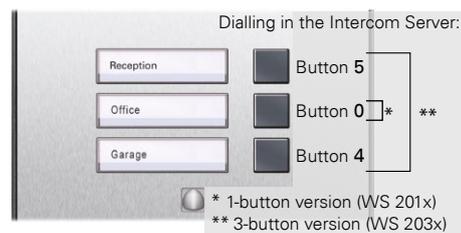
Recommended mounting height

The upper edge of the station approx. 1.65 m (5.4 ft) from the finished floor. Please adapt the mounting height to the individual needs.

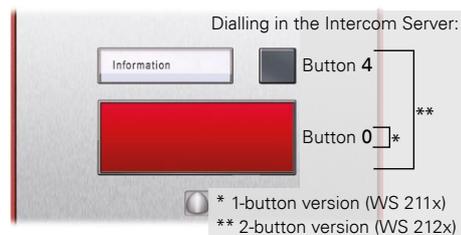


Button configuration

Series WS 200V



Series WS 210V



A strong worldwide network

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

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