# WS 200V I CA

## Vandal resistant IP wallmount station with built-in Axis camera

Built-in Axis camera

High volume

Weather-proof IP66

16 kHz
eHD Voice

Vandal resistant IK09

## Professional audio and video

The vandal resistant station with its built-in high-performance Axis camera is developed for areas with high requirements on safety and system integration. The integrated technology allows excellent speech quality and comprehensibility independent of background noise.

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 – IP rating IP66. The button can be allocated to a call number and the label area can be filled in individually.

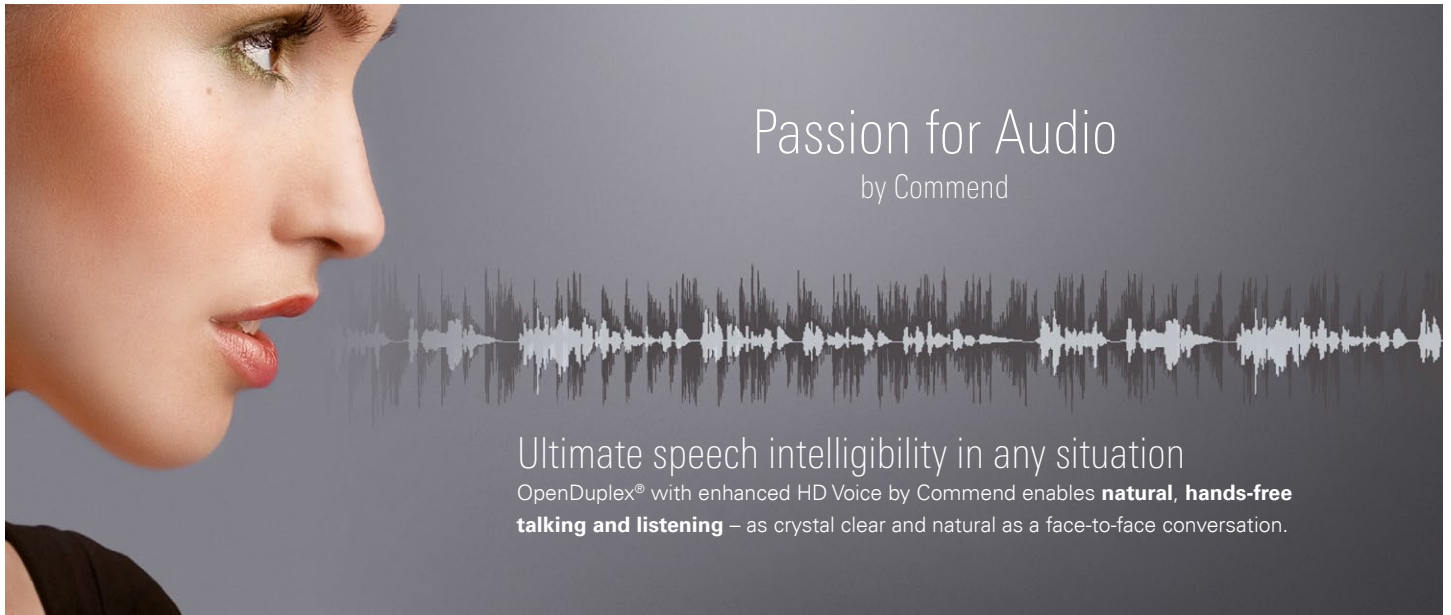### WS 201V I CA (not pictured)

IP station with one programmable, back-lit direct dialling button, back-lit label area, electret condenser microphone with multifunction LED, loudspeakers 2 × 8 Ω, 3 inputs for floating contacts and 2 relay outputs (connection as normally open or normally closed contact), protection classification IP66 and IK09, material stainless steel.

### WS 203V I CA

IP station like WS 201V I CA but with 3 programmable, back-lit direct dialling buttons and label areas.

## Features and highlights

– Compatible with third-party components, e.g. NVRs
– Multiple H.264, H.265 and Motion JPEG streams possible
– Excellent video quality, including Full HD 1080p
– Vandal resistant and detection of tampering attempts such as blocking or spray-painting
– Backlit direct dialling button and label area
– Supports DSP features such as OpenDuplex®, audio monitoring and loudspeaker/microphone surveillance

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## 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.

The ORIGINAL OpenDuplex® since 2003
**Natural communication**

16 kHz eHD Voice
**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** | Highly 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 |

Learn more
**audio.commend.com**

## 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

**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

**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**

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# WS 200V I CA
# Technical specifications

## Technical data WS 200V I CA

| | |
|---|---|
| **IP rating:** | IP66 (acc. EN 60529) |
| **Mechanical impact resistance:** | IK09 (acc. EN 62262) |
| **Front panel:** | 1.4301/AISI 304, 3 mm (0.12 in) |
| **Microphone:** | electret condenser microphone<br>polar pattern: omnidirectional<br>speaking distance: max. 7 m (23 ft) |
| **Loudspeaker:** | special membrane type for optimal sound quality<br>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$_{eff}$<br>EM impedance: 3.3 kΩ<br>EM supply: 2.5 V<br>EP level: 850 mV$_{eff}$ at 0 dBm0<br>EP impedance: 200 Ω |
| **Input:** | 3 inputs for floating contacts<br>(detection of 5 input states) |
| **Output:** | 2 relay outputs (switch-over contact)<br>max. 60 W (DC)/37.5 VA (AC)<br>max. 2 A<br>max. 60 VDC/30 VAC<br>expected life: min. $5 \times 10^4$ (2 A), $10^5$ (1 A) |
| **Line output:** | for connecting a loudspeaker module |
| **Status indication:** | multifunction LED (colours: red, green, blue) |
| **Call button:** | back-lit direct dialling button with label area |
| **Audio bandwidth:** | 16 kHz |
| **Operating temperature range:** | –25 °C to +60 °C (–13 °F to +140 °F) intermittent [1],<br>+50 °C (+122 °F) permanent |
| **Storage temperature range:** | –25 °C to +60 °C (–13 °F to +140 °F) |
| **Relative humidity:** | up to 95%, not condensing |
| **Connection:** | pluggable screw terminals<br>Ethernet: shielded RJ45 modular jacks |
| **Cabling:** | min. Cat. 5 |
| **Power supply:** | PoE: IEEE 802.3af<br>power consumption: class 0 (0.44 W to 12.95 W) |
| **Device class:** | ES1, PS2 as per IEC/EN 62368-1 |
| **Protocol:** | IoIP protocol based on UDP/IP |
| **Data rate:** | 10/100 MBit/s (Full/Half Duplex) |
| **Mounting:** | flush mount kit WSFB 50V<br>flush mount kit WSFB 50V FL<br>surface mount kit WSSH 50V<br>rain protection roof WSRR 50V |
| **Dimensions (W × H × D):** | with flush mount kit:<br>164 × 279 × 14 mm (6.46 × 10.98 × 0.55 in)<br>with surface mount kit:<br>164 × 279 × 50 mm (6.46 × 10.98 × 1.97 in)<br>(dimensions without camera dome) |
| **Weight incl. package:** | approx 1,500 g (3.3 lbs) |

[1] For a period of 4 hours

## 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 Intercom station.

## Extent of supply

– Intercom station
– Short reference
– Screws for mounting
– Snap-on ferrite (to be attached to IP uplink Ethernet cable)

## Video notes

For video to be displayed on subscribers of types WS-TM 50x, WS 810x and CD 810x, set the field **Authentication policy** to the value **Basic**. This setting is available with Axis Long Term Support firmware LTS2024 track (11.11). It may no longer be supported in newer firmware versions.

A maximum resolution of 800 × 600 pixels is supported when operating with EE 980 subscribers.

WS 200V I CA DATA SHEET V1.0/0125

TE | 1

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# Technical data Axis camera

## General

| Memory and storage: | 1024 MB RAM, 512 MB Flash<br>support for microSD/microSDHC/microSDXC card<br>with UHS Speed Class U1<br>support for recording to network-attached storage (NAS)<br>for SD card and NAS recommendations see axis.com |
|---|---|

## Camera

| Image sensor: | 1/2.9" progressive scan RGB CMOS |
|---|---|
| Lens: | 2.8 mm, F1.2, fixed aperture |
| Minimum focus distance: | 0.3 m (1 ft) |
| Total camera angle of view<br>(incl. mechanical adjustment range): | 141° horizontally,<br>102° vertically |
| Camera angle adjustment<br>(mechanical): | ± 18° horizontally,<br>± 25° vertically |
| Minimum illumination: | color: 0.02 lux at 30 IRE F1.2<br>color: 0.07 lux at 50 IRE F1.2 |
| Shutter time: | with WDR [1]: 1/19,000 s to 1/5 s<br>without WDR [1]: 1/17,000 s to 1/5 s |

[1] Wide Dynamic Range

## System integration

| Programming Interface: | open API for software integration, including VAPIX® and AXIS Camera Application Platform (ACAP); specifications at axis.com/developer-community. ACAP includes Native SDK.<br>one-click cloud connection<br>ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S and ONVIF® Profile T, specification at onvif.org |
|---|---|
| Analytics: | included<br>AXIS Video Motion Detection, active tampering alarm [3]<br>supported<br>AXIS Fence Guard, AXIS Loitering Guard, AXIS Motion Guard<br>support for AXIS Camera Application Platform enabling installation of third-party applications, see axis.com/acap |
| Event conditions: | device status: above operating temperature, above or below operating temperature, below operating temperature, IP address removed, network lost, new IP address, storage failure, system ready, within operating temperature<br>edge storage: recording ongoing, storage disruption<br>I/O: manual trigger, virtual input<br>MQTT subscribe<br>scheduled and recurring: scheduled event<br>video: average bitrate degradation, live stream open, tampering |
| Event actions: | guard tours<br>upload images or video clips: FTP, HTTP, HTTPS, SFTP, email and network share<br>notification: HTTP, HTTPS, TCP and email<br>overlay text<br>preset positions<br>record video: SD card and network share<br>SNMP trap messages<br>WDR mode<br>MQTT publish |

[3] For detection of tampering attempts in static and non-crowded scenes.

## Video

| Video compression: | H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles,<br>H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG |
|---|---|
| Resolution: | 16:9: 1920 x 1080 to 640 x 360 pixels<br>16:10: 1280 x 800 to 640 x 400 pixels<br>4:3: 1280 x 960 to 320 x 240 pixels |
| Frame rate: | H.264 and H.265: 25/30 fps (50/60 Hz) in all resolutions<br>Motion JPEG: 15 fps (50/60 Hz) in all resolutions |
| Video streaming: | up to 4 unique and configurable video streams<br>multiple, individually configurable streams in H.264, H.265 and Motion JPEG<br>Axis Zipstream technology in H.264 and H.265<br>controllable frame rate and bandwidth<br>VBR/ABR/MBR H.264 and H.265<br>video streaming indicator |
| Image settings: | compression, brightness, sharpness, contrast, white balance, forensic WDR, exposure control, exposure zones, fine tuning of behavior at low light, rotation: 0°, 90°, 180°, 270° including corridor format, dynamic overlay, 32 individual polygonal privacy mask, mirroring of images, scene profiles: forensic, vivid, traffic overview |

## Network

| Security: | IEEE 802.1x (EAP-TLS, PEAP-MSCHAPv2), IEEE 802.1AE (MACsec PSK/EAP-TLS), IEEE 802.1AR, HTTPS/HSTS, TLS v1.2/v1.3, Network Time Security (NTS), X.509 Certificate PKI, host-based firewall |
|---|---|
| Supported protocols: | IPv4, IPv6 USGv6, HTTP, HTTPS, HTTP/2, TLS, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, mDNS (Bonjour), UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS/DNSv6, DDNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SOCKS, SSH, LLDP, CDP, MQTT v3.1.1, Syslog, Link-Local address (ZeroConf) |

## Camera component information

The camera component included in this product is made by the independent manufacturer AXIS Communications. The responsibility for safe operation lies solely with the operator.

## Security instructions

- The responsibility for secure operation lies solely with the operator. Appropriate precautions, in particular the choice of a secure root password, are their responsibility. For instructions on password safety, see the product manual "**Cyber security hardening and application guideline**".
- Regularly check the Commend Security Advisories in cLibrary under https://clibrary.commend.com/en/cyber-security/security-advisories as well as the AXIS Communications support website under https://www.axis.com/en-gb/support.

## System requirements

**Intercom Server**
– GE 800 (min. PRO 800 3.0) with G8-IP (min. G3-8-IP 4.0B01) or
– GE 300 (min. PRO 800 3.0) with G3-IP (min. G3-8-IP 4.0B01) or
– IS 300 (min. PRO 800 3.0) or
– S3/S6 (min. VirtuoSIS version 14.2) or
– VirtuoSIS (min. version 14.2)
– To display the camera image on monitor modules of the WS series: min. upgrade licence PRO3U

**Backwards compatibility to GE 700 or GE 200**
– GE 700 (min. PRO 5.7) with G7-DSP-IP or
– GE 200 (min. PRO 5.7) with G2-DSP-IP
– Detected as ET 908 (depending on PRO software) – can only be used with the feature scope of an ET 908
– Firmware download only possible with GE700-UPG or via IP Station Config!

**Configuration software**
– Configuration software min. CCT 800 14.2
– Configuration software IP Station Config (included in setup of CCT 800 14.2)

## Network requirements

**IP addresses and ports**
– For the WS 200V I CA, DHCP functionality is available. If DHCP is not used, the WS 200V I CA must have a fixed IP address.
– In case of a changing public IP address, dynamic registration of a WS 200V I CA is possible.
– Communication from the software IP Station Config is done via port 16399 (cannot be configured).
– Communication from the WS 200V I CA 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 WS 200V I CA, for upload and download: 96 kBit/s (speech and data – no video)
– Speech is compressed according to G.722 standard.

## Configuration

The device series WS 200V I CA with AXIS camera module M3905-R can be distinguished from their predecessor models in CCT 800 by the suffix "(Rev 02)". For further information about the configuration, see product manual "**Intercom Server Configuration**".

## First connection to the camera's web interface

The IP address is assigned via a DHCP server. If the network does not have a DHCP server, the default address "192.168.0.90/24" is used.

The web interface can be accessed via a web browser using the URL "http://<IP address>". The MJPEG stream can directly be acessed at the URL "http://<username>:<password>@<IP address>/axis-cgi/mjpg/video.cgi".
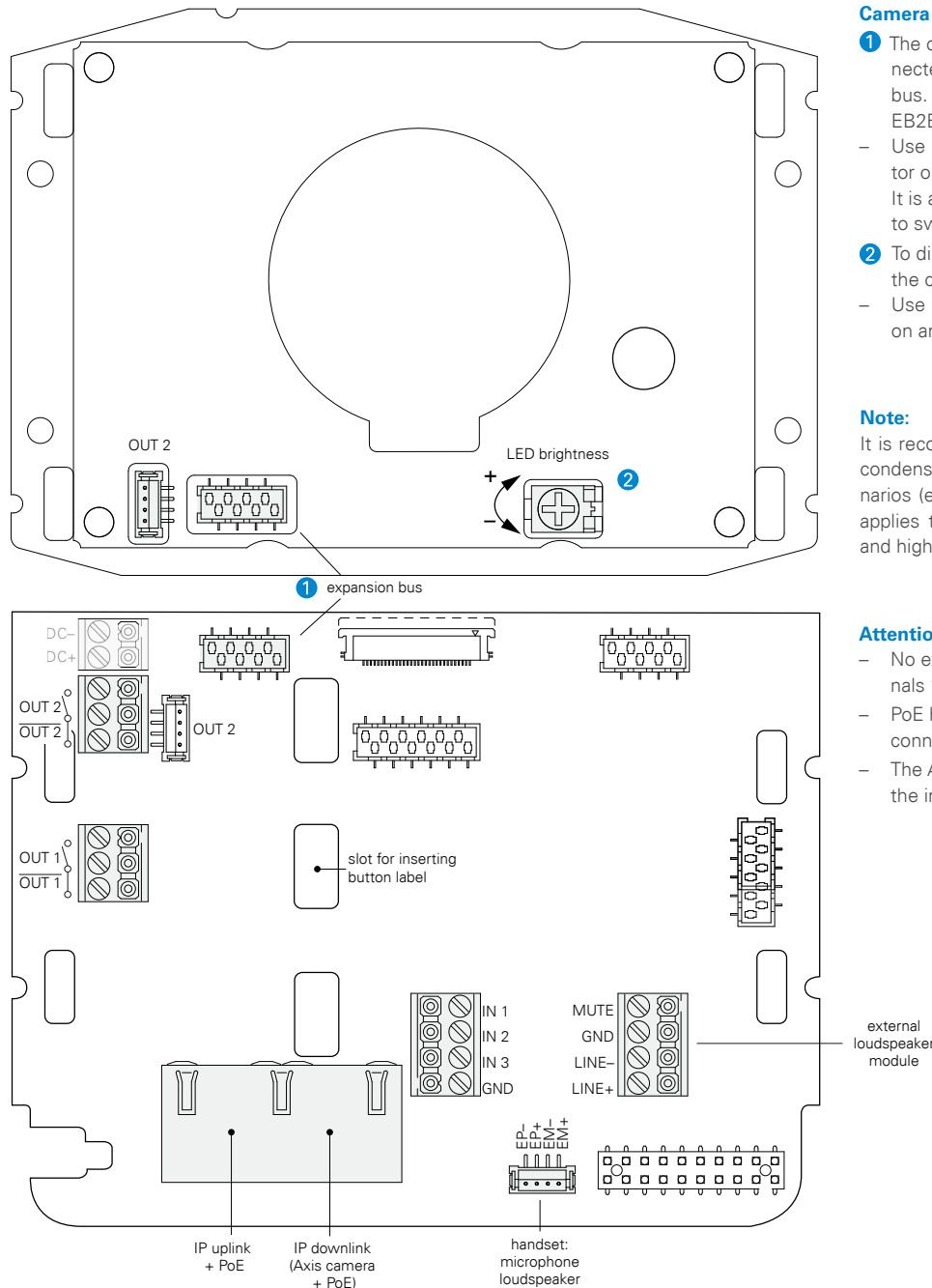
## Note:

For further information on installation and settings, see Axis manual "M3905-R".

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# WS 200V I CA
## Installation instructions

## Connection diagram



OUT 2

LED brightness

**1** expansion bus

DC–
DC+

OUT 2
OUT 2

OUT 2

OUT 1
OUT 1

slot for inserting
button label

IN 1
IN 2
IN 3
GND

MUTE
GND
LINE–
LINE+

external
loudspeaker
module

EP–
EP+
EM–
EM+

handset:
microphone
loudspeaker

IP uplink
+ PoE

IP downlink
(Axis camera
+ PoE)

### Camera illumination and heating control

**1** The camera illuminator and the heating control are connected to the main board of the station via the expansion bus. In CCT 800, the device is shown with an additional EB2E2A device.

– Use OUT 1 on the EB2E2A to switch the camera illuminator on and off.
It is also possible to use OUT 1 as attendant contact, e.g. to switch on the camera illuminator at call setup.

**2** To dim the camera illuminator, use the potentiometer on the camera board.

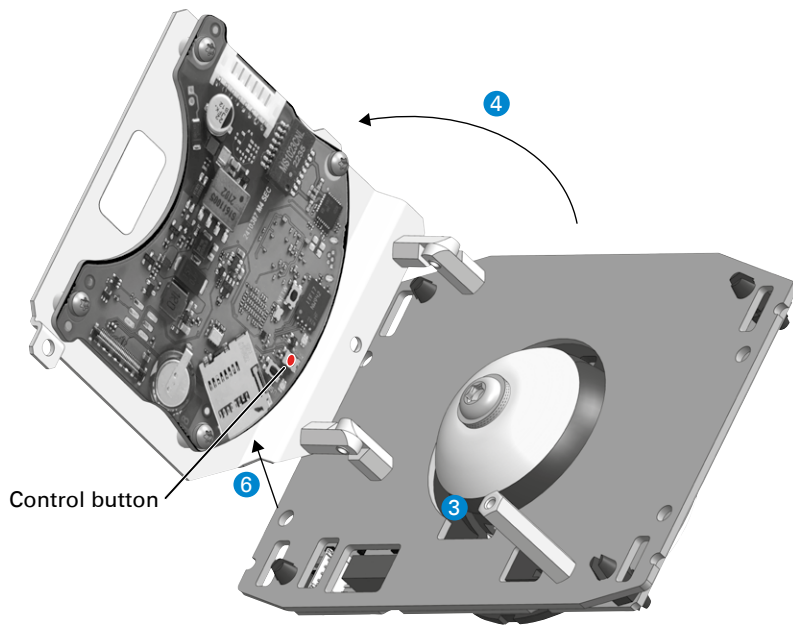– Use OUT 2 on the EB2E2A to switch the camera heating on and off.

### Note:

It is recommended to always run the camera heating to avoid condensation on the camera glass in certain installation scenarios (e.g. inside metal columns). This recommendation also applies to environments with widely fluctuating temperature and high humidity.

### Attention:

– No external power supply may be connected to the terminals "DC–" and "DC+"!

– PoE has to be connected to the RJ45 jack "IP uplink" (see connection diagram).

– The Axis camera is connected to the jack "IP downlink" of the intercom station PCB.
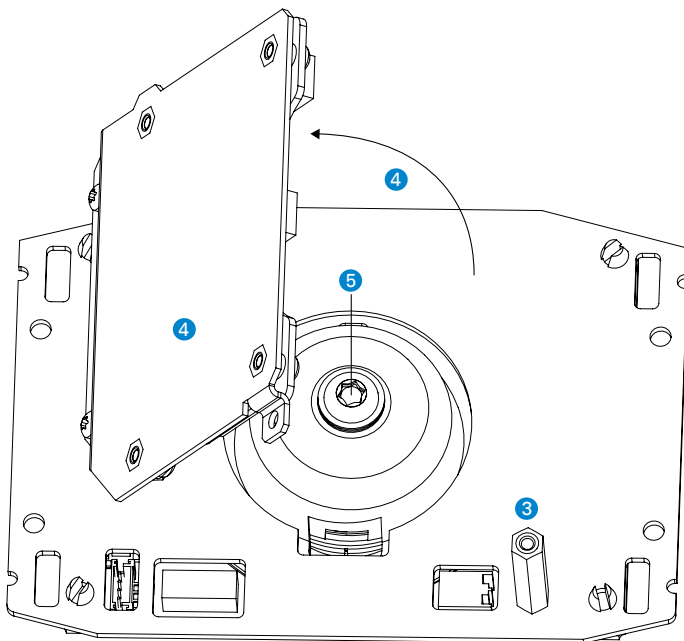
## Axis electronic module – memory card slot



Control button

### Inserting a memory card

Follow the steps below to insert a memory card into the module:
– Loosen the screw ③ (Torx T8).
– Open up the Axis camera module ④. Avoid damage to the connection cable.
– Insert the memory card into the card reader ⑥.
– Close the Axis camera module ④. Avoid damage to the connection cable.
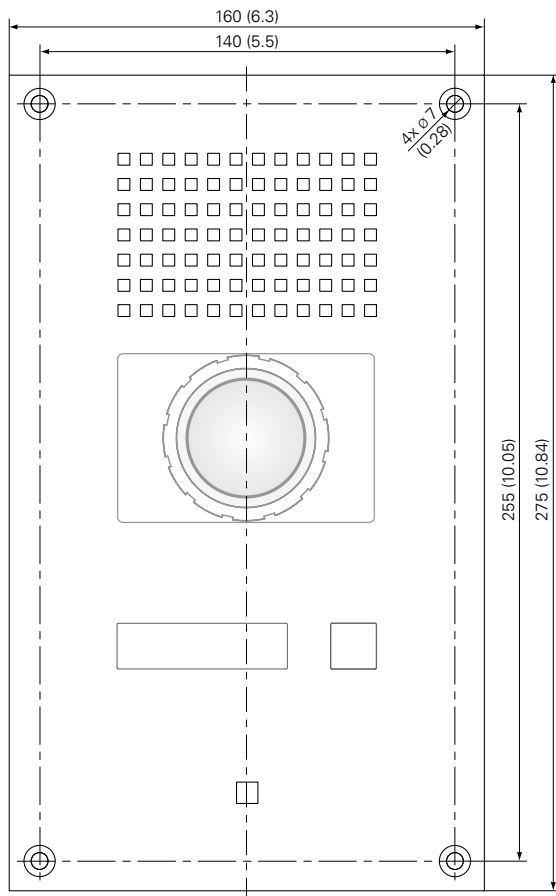– Tighten the screw ③.

## Axis electronic module – camera angle



**Adjusting the camera**

Follow the steps below to adjust the angle of the camera:
– Loosen the screw ③ (Torx T8).
– Open up the Axis camera module ④. Avoid damage to the connection cable.
– Loosen the locking screw ⑤ (Torx T25) on the rear of the camera.
– Adjust the camera angle as desired (max. 18° horizontally/25° vertically).
– Tighten the locking screw ⑤.
– Close the Axis camera module ④. Avoid damage to the connection cable.
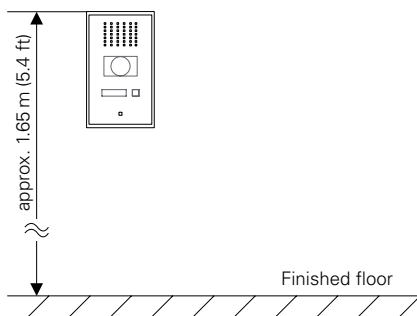– Tighten the screw ③.

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## Dimensions front panel

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



160 (6.3)
140 (5.5)
4x ⌀ 7 (0.28)
255 (10.05)
275 (10.84)

**Recommended mounting height**

It is recommended to mount the upper edge of the station approx. 1.65 m (5.4 ft) from the finished floor. Adapt the mounting height to individual needs.



approx. 1.65 m (5.4 ft)

Finished floor

## 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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## Precautions

– This is a Class A product (standard EN 55032). In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

– Cables must never be placed in the space between the protective plate of the Axis camera module and the wall mount box. Doing so may cause damage to the Axis camera or compromise the tightness of the Intercom station's housing.

– All connected circuits shall fulfil the requirements for ES1 (cf. SELV acc. IEC/EN 60950-1) and PS2 (Limited Power Source) as per IEC/EN 62368-1.

– Let the device cool down completely before touching any parts of it.

– Disconnect the power supply (PoE) for any maintenance of the device.

– Before using the device, ensure that all cables are undamaged and properly connected.

– This device may only be installed, replaced and maintained by trained and properly qualified personnel (device class: ES1, PS2 acc. IEC/EN 62368-1). The connectors are subject to possible high transient voltage surges. The device is intended for appropriate installation in locations where operating personnel cannot come into contact with uninsulated wires.

– Devices belonging to another earthing network must not be connected to the device's connectors.

– Do not install the device on unstable walls or on surfaces which cannot support the device's weight.

– Only accessories that comply with the device's technical specifications shall be used.

– 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.

– Use shielded Ethernet cables only.

– Do not make any unauthorised modifications to the device.

## Mounting instructions

– Do not expose the station to extreme temperatures (see "Technical data").

– Observe the country specific standards for installation, mounting and configuration.

– When opening the station, ESD precautions must be observed.

– The station may only be opened by authorised service engineers.

– For flush mounting, the flush mount kit WSFB 50V or WSFB 50V FL is required (available separately).

– For surface mounting, a surface mount kit WSSH 50V is required (available separately).

– Use shielded Ethernet cables only.

– If the Intercom station is installed in a third-party column, ensure sufficient air circulation to prevent condensation and extreme heat generation (e.g. by means of ventilation slots at the top and bottom of the column). It is recommended to use ventilation grilles with small animal protection.

## 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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