



AFLS H

LOUD AND SCALABLE

Superior performance in demanding environments

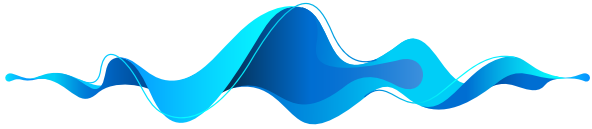
The IP horn speaker delivers crystal-clear audio broadcasting capabilities designed specifically for security and safety environments where reliability and performance are nonnegotiable. Its bidirectional audio functionality transforms conventional one-way announcement systems into interactive communication points, while the Smart Amp technology ensures maximum volume and speech intelligibility. The robust design ensures reliable operation in harsh environments and high-noise areas.

Seamless integration

With IP connectivity, this horn speaker eliminates complex wiring requirements and integrates seamlessly with security and safety systems. The speaker supports standard network protocols, enabling straightforward deployment and management within infrastructure.

FEATURES AND HIGHLIGHTS

- Outstanding two-way audio communication empowered by revolutionary AI-based noise and echo cancellation, delivering unparalleled clarity and speech intelligibility (requires optional microphone, e.g. MIC480)
- IVC (Intelligent Volume Control) automatically adjusts the volume setting to the ambient noise level (requires optional microphone)
- Advanced audio features like Audio monitoring enabling ambient acoustic surveillance and automatic triggering of actions or live sound pressure level measurement (requires optional microphone)
- Provides high volume at low energy consumption via Smart Amp technology and standard PoE – addressing the global demand of sustainability and energy efficiency
- Network-based architecture for flexible installation, remote management and monitoring capabilities
- End-to-end monitoring of connection and device functionality additionally an optional tamper switch can be fitted during installation or retrofitted later
- Built-in inputs and outputs for controlling and monitoring connected components
- Supports voice announcements via SIP, multicast, ONVIF Profile T, enabling reliable, remote audio alerting and messaging



CERTIFIED
ACC. TO
ISO 27001
IEC 62443-4-1

PASSION MEETS AUDIO

Because every word matters, high speech intelligibility is crucial in security and communication solutions. In everyday life, it enables natural and brilliant communication; in operational processes, it ensures improved efficiency and in an emergency often buys life-saving time.

AI CLEANS VOICE FROM NOISE

NOISE CANCELLATION ¹⁾

Revolutionary **AI-based** noise cancellation, powered by our deep neural networks, transforms your audio experience. Genuine, device-specific audio training data enables us to easily distinguish between speech and background noise and effectively eliminate unwanted sounds (wind, traffic, background talk), providing you with pristine, uninterrupted communication.

ECHO CANCELLATION ¹⁾

Our advanced echo cancellation technology leverages the power of Commend's proprietary **deep neural networks** to deliver unparalleled clarity. Experience smooth and natural conversations without any noticeable echoes or delays, ensuring effective communication every time.

DYNAMIC VOLUME ADJUSTMENT ¹⁾

IVC (Intelligent Volume Control) automatically adjusts the loudspeaker volume of the Intercom station depending on the environment noise level – because both, too low and too high a volume, significantly reduces speech intelligibility and the user experience.

HANDS-FREE COMMUNICATION THROUGH OPENDUPLEX* ¹⁾

This technology from Commend, combined with highly sensitive microphones as well as a high volume, allows natural and hands-free communication within a unique radius of several metres.

AUDIO FUNCTIONS ADDING VALUE

- **Loudspeaker-microphone surveillance** ¹⁾ – constant availability of Intercom stations while greatly reducing the manual testing effort.
- **Audio monitoring** ¹⁾ – fully automated (emergency) call triggering at defined sound pressure levels for more security.
- **Live sound pressure level** ¹⁾ – continuous measurement of ambient noise with optional transfer to a management system through SNMP or HTTPS (e.g. to visualise noise volumes).
- **Equalizer** – for fine-tuning to ambient acoustic conditions.
- **Public address functions** – as an essential element of a holistic solution approach, announcements can be made or played back at every Intercom station as well as responded to directly.

For more information, visit:

audio.commend.com

¹⁾ When connecting an optional microphone

CYBER SECURITY AT COMMEND

Security is above all a question of trust. At Commend, cyber security as a core competence has always been given a very high priority. From the initial product idea through implementation and operational support, privacy and security by design (PSBD) is the uncompromising target and promise to our customers against which product features and functions must be measured.

CYBER SECURITY AS TOP PRIORITY

- Commend as well as the hardware and software development process is rigorously certified according to the standard IEC/ISO 27001 and subject to a company-wide information security management system (ISMS)
- Commend is a member of the Center for Internet Security (CIS)
- Commend's Cyber Security Board ensures the handling and transparent communication of security vulnerabilities as well as the strategic hardening of Commend systems
- Commend is certified in accordance with the IEC 62443-4-1 standard. The Commend development team implements secure communication and automation solutions in agreement with „Security by Design“ guidelines.
- Commend continuously publishes software updates with security patches and improvements

PHYSICAL SECURITY

- Robust devices and vandal-resistant product versions
- USB and port-debugging protection

NETWORK SECURITY

- **Standard IEEE 802.1x** for authentication (network access)
- **Standard IEEE 802.1q** for VLANs (network segmentation)
- Commend IP Secure Connector for automatic interruption of the network connection in the event of a tampering attempt

DATA SECURITY

- **Encrypted and authenticated communication**
- **SIP** over TLS v1.2 with secure cipher suites (> 128 bit)
- **SRTP** for tap-proof encryption of voice data
- **X.509 client certificates** for authentication and encryption
- TLS transport encryption for the protocols **HTTPS**, **SIPS** and **MQTT**s to protect the web interface, APIs and video

APPLICATION SECURITY

- Mandatory change of the default password during the first login
- Minimum password length: 12 characters
- Detection of brute-force attacks at login
- Documentation and securing of network ports

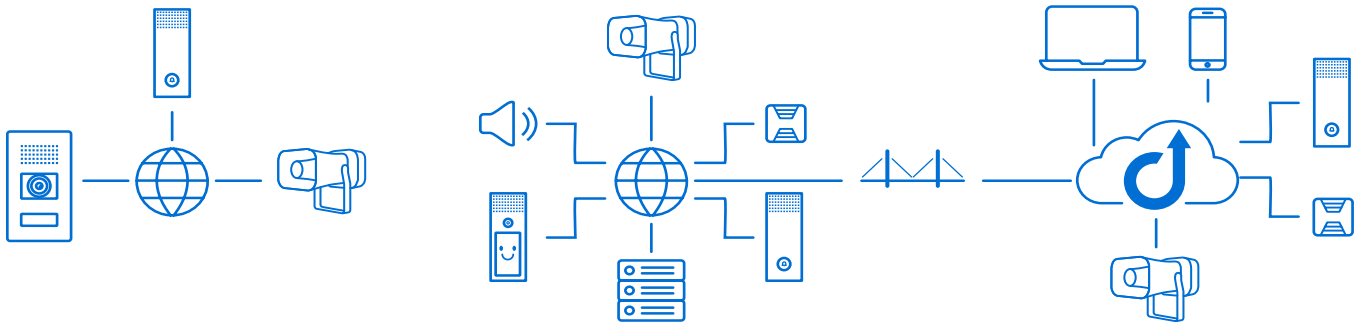
Information about the cyber security of other Commend products can be found in the respective data sheets and product manuals.

For more information, visit:

trust.commend.com

CONNECTIVITY AND INTEGRATION

Symphony is our solution platform based on scalable hardware as well as powerful software functions, with the clear goal to use current and future cloud services' performance. Symphony offers the right solution for every size and requirement.



SYMPHONY MESH

Devices form an independent and intelligent communication network, even with complex action sequences no server is needed.

SYMPHONY ON-PREM

The Software Intercom Server VirtuoSIS is deployed in virtual server environments (VMWare, Hyper-V or Nutanix) and is the center piece of our hardware servers S3 and S6. With VirtuoSIS, control desk solutions can be realised, sites can be connected and the multitude of third-party system interfaces can be used.

SYMPHONY CLOUD

With the Symphony Mobile Client, calls can be accepted on a smartphone and a tablet or with the Web Client in a browser. Devices can be directly connected to Symphony Cloud, on-premise systems can use Symphony Bridge to get access to these and future services.

SIP SERVER

In addition to Commend servers, devices can be used with a multitude of SIP PBX systems. We continuously perform comprehensive tests with SIP servers of different manufacturers to ensure compatibility without compromises.

INTEGRATIONS

Commend solutions can be connected to leading manufacturers systems - from video management, access control and PA up to security management solutions. Using triggers, actions can be defined system-wide and processes can be automated.

TECHNICAL DATA

GENERAL

Article name	AFLS H
Article code	C-AFLS-H
Manufacturer	Commend International GmbH/Austria
Manufacturer ISO 27001	yes

CONNECTIONS AND PORTS

Network	RJ45 jack for Ethernet shielded with 10Base-T/100Base-TX and PoE
Inputs	2 inputs for floating contacts
Inputs, additional information	(switches, push-buttons, relay outputs, etc.), input states: short, 560, 1k, 1k5, 2k2, 2k7, 3k3, 4k7, 6k8, 8k2, 10k, 15k, 22k, 33k, 56k, open; I/O connector with spring-type terminal (14-pin, conductor cross-section solid/flexible: 0.14–0.5 mm ² , conductor cross-section flexible, with ferrule and without plastic sleeve: 0.25–0.34 mm ² , conductor cross-section flexible, with ferrule and with plastic sleeve: 0.14–0.25 mm ² , AWG 26–20, stripping length: 7 mm/0.28 in) ¹⁾

Microphone input

Microphone input sensitivity (electret condenser microphone)	–43 dBV/Pa
Supply voltage	3.3 V at 4.3 kΩ

Line input

Line input sensitivity	nom. –10 dBu, max. +14 dBu
Input impedance	100 kΩ

Outputs 1 relay output

Outputs, additional information max. switching voltage: 60 VDC, 30VAC; max. switching current: 2 A; max. switching power: 60 W (DC), 37.5 VA (AC); expected electrical life: min. 10⁵ (30 VDC/2A), min 2 * 10⁵ (30 VDC/1A)²⁾

USB 1 USB 2.0 port (Type-A)³⁾

¹⁾ For the input state “Short”, the switch resistance has to be < 280 Ω.

²⁾ The relay output may only be used for ES1/PS2 or SELV/LPS circuits. An ES1 circuit according to IEC/EN/UL 62368-1 or a SELV/LPS circuit according to IEC/EN 60950-1 must be safely separated (e.g. by double insulation) from a dangerous circuit (e.g. 230 V or 110 V mains circuit) and must not exceed the voltage values 60 VDC or 42.4 VAC_{peak} (30 VAC_{eff}).

³⁾ Connectors (USB, MIC+, LineIN+, MIC–/LineIN–, IN– (GND), IN1+ and IN2+) are PS1-declared and PS1-tested (acc. to EN/UL/IEC 62368-1).

APPROVALS AND COMPLIANCES

Product safety	EN 62368-1
EMC	EN 55032 Class B, EN 55035
Other approvals and compliances	FCC Part 15 Class B, ICES-003 Class B, MIL-STD 810H Method 521.4, EN 60529 IP66, EN 62262 IK10, IEC 62368-1 (CB-Scheme), UL 62368-1 Listed(E351589) pending

MECHANICAL PROPERTIES

IP rating (acc. to EN 60529)	IP66
IK rating (acc. to EN 62262)	IK10
Weight incl. packaging:	ca. 2400 g
Weight incl. packaging in pounds:	ca. 5.3 lbs
Housing material	High-quality polycarbonate and aluminium alloy
Housing colour	Light grey (like RAL 7035)
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	max. 95%, not condensing
Mechanical properties, additional information	Material mounting bracket and terminal screws: V4A/1.4571

DIMENSIONS

Width	180 mm
Width in inches	7.1 in
Height	116 mm
Height in inches	4.6 in
Depth	230 mm
Depth in inches	9.1 in

AUDIO

Audio bandwidth	max. 20 kHz
Frequency range	350 Hz to 10 kHz (–10 dB)
Audio codecs	Opus, G.722, G.711 a-law, G.711 u-law
Audio features ⁴⁾	Intelligent Volume Control (IVC), OpenDuplex®, AI Cleans Voice from Noise

Loudspeaker

Sound pressure level (SPL)	max. 118 dB at 1m
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Amplifier

Amplifier type	highly efficient Smart Audio Amplifier
Amplifier power	10 W

Audio, additional information Loudspeaker: 30W, 4 Ω
Loudspeaker transmission angle: 110° × 55°
(H × V)

⁴⁾ Requires optional microphone, e.g. MIC480.

POWER SUPPLY

Power over Ethernet	PoE (IEEE 802.3af/at Type 1 class 3), 12.95 W
Power consumption	idle: approx. 2.4 W (standalone) max.: approx. 8.6 W

PROTOCOLS AND CONNECTIVITY

Mode	Symphony Mesh, Symphony On-Prem, Symphony Cloud, ONVIF
Transmission technology	SIP
Platform	Symphony MX
Protocols (SIP)	IPv4, IPv6, TLS, TCP, UDP, HTTPS
Protocols and connectivity, additional information	HTTP (RFC 2617, RFC 3310), HTTPS (RFC 2818), RTP (RFC 3550), RTCP, DHCPv6, DNSv4, DNSv6, mDNS, SDP (RFC 2327, RFC 4566), SSDP, SIP (RFC 3261), SMTP, SNMPv2c, SNMPv3, SNTIPv4 (RFC 5905, Section 14), STUN (classicstun), MQTT (ISO/IEC 20922)
ONVIF	Profile T compliant
LAN	IEEE 802.1q (VLAN network segmentation), Network Access Control 802.1x EAP-TLS (RFC 5216), Network Access Control 802.1x EAP-MD5 (RFC 2284), RTSP (RFC 2326)
Configuration	DHCP, ICMPv6 (router discovery)
Signalling	RFC 3261 (SIP-Base Standard), RFC 2976 (SIP Info)
DTMF support	RFC 2833, RFC 2976 (SIP Info)
Cyber security features	ISO-27001-certified manufacturer, SIP over TLS, SRTP, IEEE 802.1X, HTTPS for access to web interface and interfaces, X.509 certificates, secure boot, signed firmware, encrypted file system

EXTENT OF SUPPLY

- IP network horn speaker
- Open source compliance information
- Device identification document
- Short reference

SYSTEM REQUIREMENTS

Server

- VirtuoSIS (min. version 5.0) or
- S3/S6 (min. version 7.1) or
- Compatible SIP server or
- Serverless operation

CONFIGURATION SOFTWARE

- Set-UP (min. version 2.1)

ACCESS

The device can be accessed through IPv4 (DHCP), IPv6 (link-local) and zeroconf. For information on accessing the web interface, see the product manual.

INSTALLATION INSTRUCTIONS

MOUNTING INSTRUCTIONS

- The cable glands of the installed loudspeaker must face downwards to ensure the functionality of the optional microphone.
- The tightening torque of the 2 screws for the mounting bracket is 3 Nm.
- The tightening torque of the 3 screws for the cover is 1.5 Nm.
- Use only certified/specified cable glands and blanking plugs in extent of supply in order to fulfill the IP rating (2xM25).
- To change the position of the loudspeaker, adjust the bracket as required (by loosening/tightening the screws).
- Use 3 screws with a diameter from 5 to 5.5 mm (0.20 to 0.22 in). Fastening, screw type and screw length depends on the mounting ground.
- The clamping range of the connections (Ethernet and 3-way entry) for the cable glands is 3-6 mm (0.12-0.24 in).
- To prevent water from collecting in the funnel of the horn loudspeaker and to allow water to drain off, the loudspeaker must be aligned horizontally or downwards.
- Use shielded Ethernet cables only.

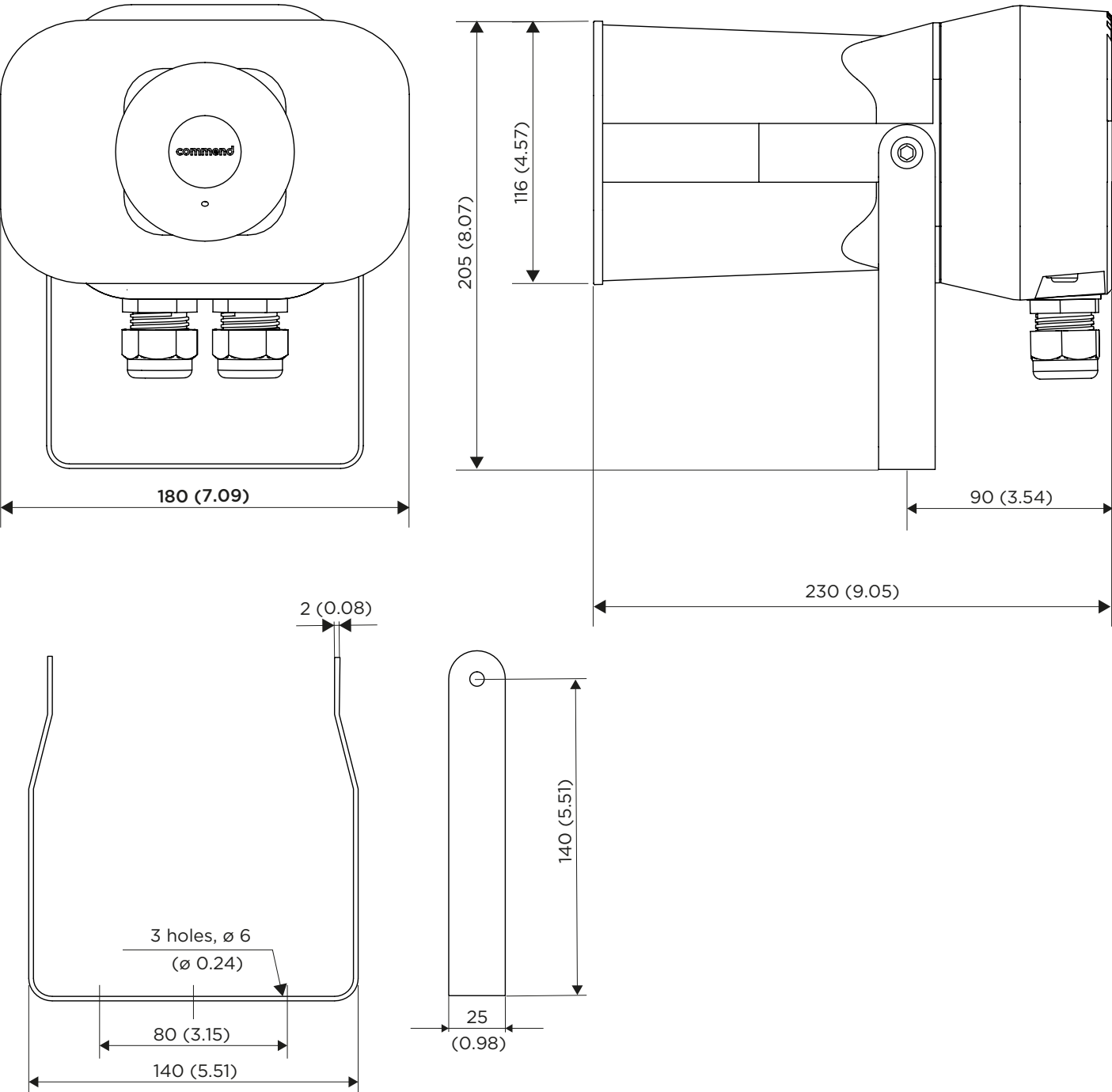
SAFETY INSTRUCTIONS

- This device shall be installed or replaced by trained and qualified personnel only.
- Observe the country-specific standards for installation, mounting and configuration.
- 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.
- Disconnect the Ethernet cable from the device before carrying out any work on the device.
- All changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.

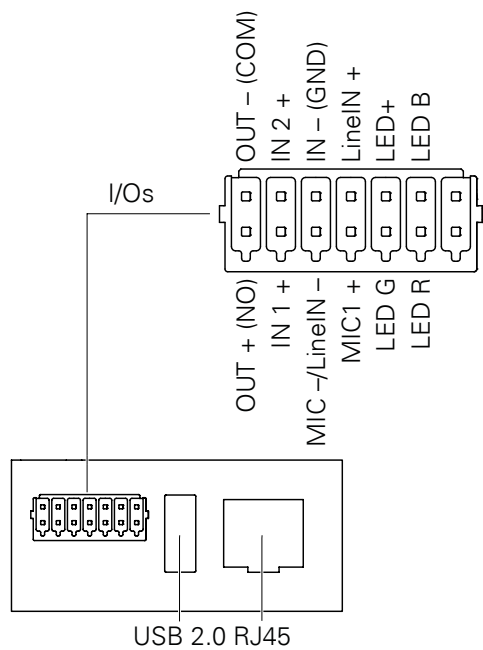
DIMENSIONS

AFLS H

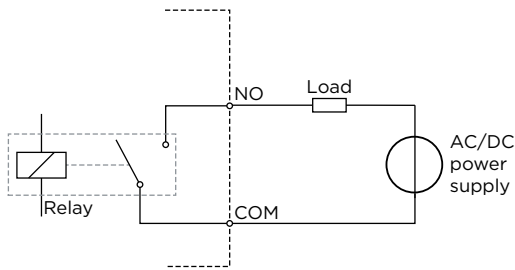
Measuring units in mm (in), not to scale!



CONNECTIONS

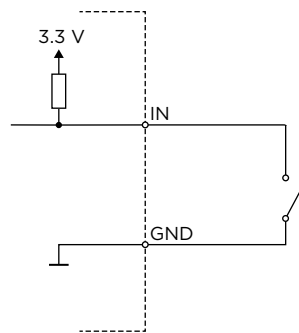


OUTPUT CIRCUIT

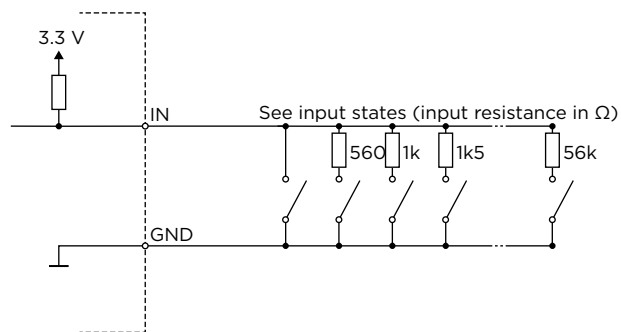


INPUT CIRCUIT

Connection example: one button per input



Connection example: multiple buttons (max- 15 buttons per input)



Commend products are developed and manufactured by Commend International in Salzburg, Austria. Our development and manufacturing processes are **certified** in accordance with **EN ISO 9001:2015**. Since mid-2020 Commend International GmbH has been **EN ISO 27001:2013 certified** throughout.

For reasons of further technical development, the design and/or specifications of products are subject to change without prior notice. All errors excepted.

