# TS12
Square Audio Intercom

TS12-N
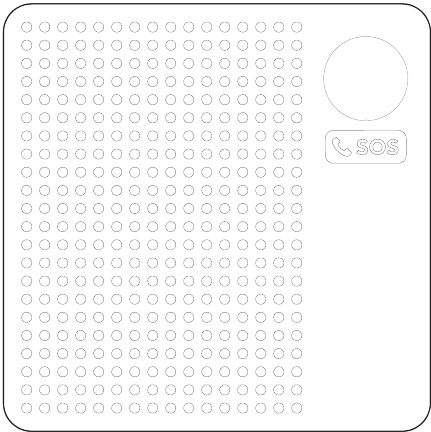
TS12-N-RB
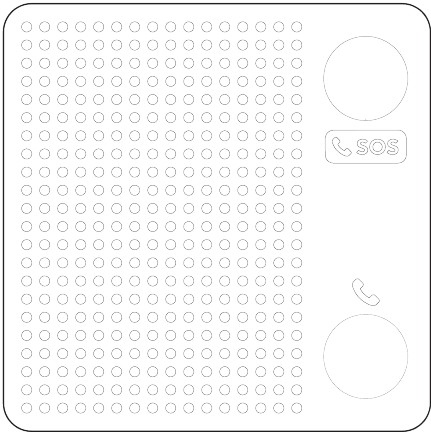
TS12-N-R2B

Document
# Document Details

## Version
**V1.0** (*20260108*)
(*V1.0 published 20260108*)

## Firmware
Firmware version can be verified on Verkada Command
command.verkada.com.

## Product Models
This install guide pertains to models:

TS12-N-HW
TS12-N-RB-HW
TS12-N-R2B-HW

Introduction
# Technical Specifications

| | |
|---|---|
| Audio Streaming | Two-way, full duplex with echo cancellation and noise suppression |
| Audio Output | 8W speaker ; 95dB SPL at 1m / 3.3ft |
| Audio Input | 4 omnidirectional digital MEMs microphones |
| Onboard Storage | 32GB |
| Inputs / Outputs | 2x dry inputs<br>1x dry relay, 30VDC @ 1A (resistive load)<br>1x RS-485 interface<br>1x power output, 12V @ 250mA<br>1x audio line output(1Vrms) or amp output (16W into 4Ω or 8W into 8Ω) |
| Dimensions | 128mm (L) x 128mm (W) x 61mm (H)<br>5in (L) x 5in(W) x 2.4in (H) |
| Weight | 800g/1.8lb |
| Tamper Detection | Accelerometer |
| Resistance Rating | IK10, IP69 |
| Operating Specs | IEEE 802.3af (PoE): Operating Temperature: -20ºC – 50ºC / -4ºF – 122ºF<br>IEEE 802.3at or 802.3bt (PoE+ or PoE++): Operating Temperature: -40ºC – 50ºC / -40ºF – 122ºF |
| Compliance | *Pending*: FCC Part 15B Class B, ICES-003 Class B, CE, UKCA, RCM, UL/IEC 62368-1, CSA NO22.2 62368-1,  UL 294 and ULC 60839-11-1 Listed Outdoor |
| Connectivity | Ethernet: 10/100/1000Mbps RJ-45 cable connector for Network/PoE connection |
| Included Accessories | T10 screwdriver, mounting hardware kit |
| Additional Accessories (Optional) | Surface mount box, emergency adapter plate, PoE over 2-wire converter |

# What's in the Box
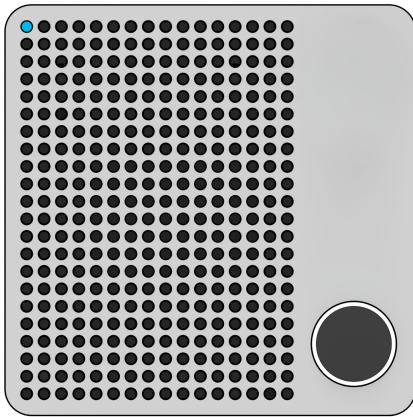
**Audio Intercom**
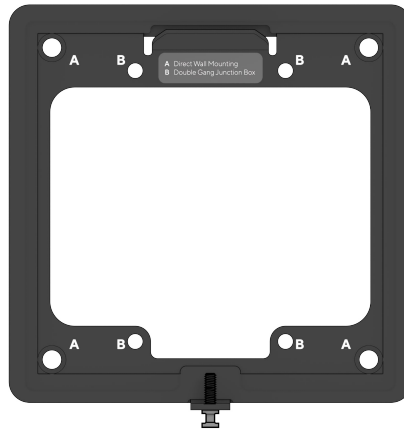
**Mount Plate**
(Attached to device)
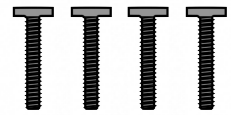
**Junction Box Screws**
**#6–32** (4 pcs)
Length: 0.5" **Drive:** #2 Phillips
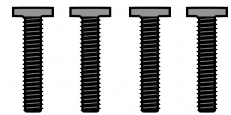
**Junction Box Screws**
**#8–32** (4 pcs)
Length: 0.5" **Drive:** #2 Phillips
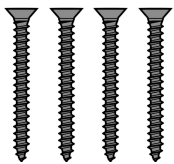
**Wall Screws** (4 pcs)
Length: 1.5" **Drive:** #2 Phillips
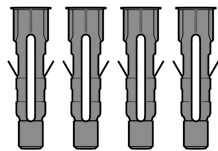
**Wall Anchors** (4 pcs)
Length: 25mm
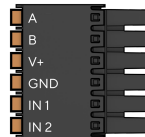
**Terminal Block**
(Attached to device)

**T10 Torx Security Screwdriver**

## What you'll need

- A smartphone or laptop
- 1/4 inch (6.5mm) drill bit for wall anchors (if using mount plate)
- 1/8 inch (3mm) drill bit for pilot holes (if using mount plate)
- A Cat5 or Cat6 Ethernet cable with a 0.2-0.25 inch diameter (5-6.5mm)

# Overview: Front

Status LED

Microphones

Speaker

**Red Button**
Available on
TS12-N-RB &
TS12-N-R2B

**SOS**

**Black Button**
Available on
TS12-N &
TS12-N-R2B
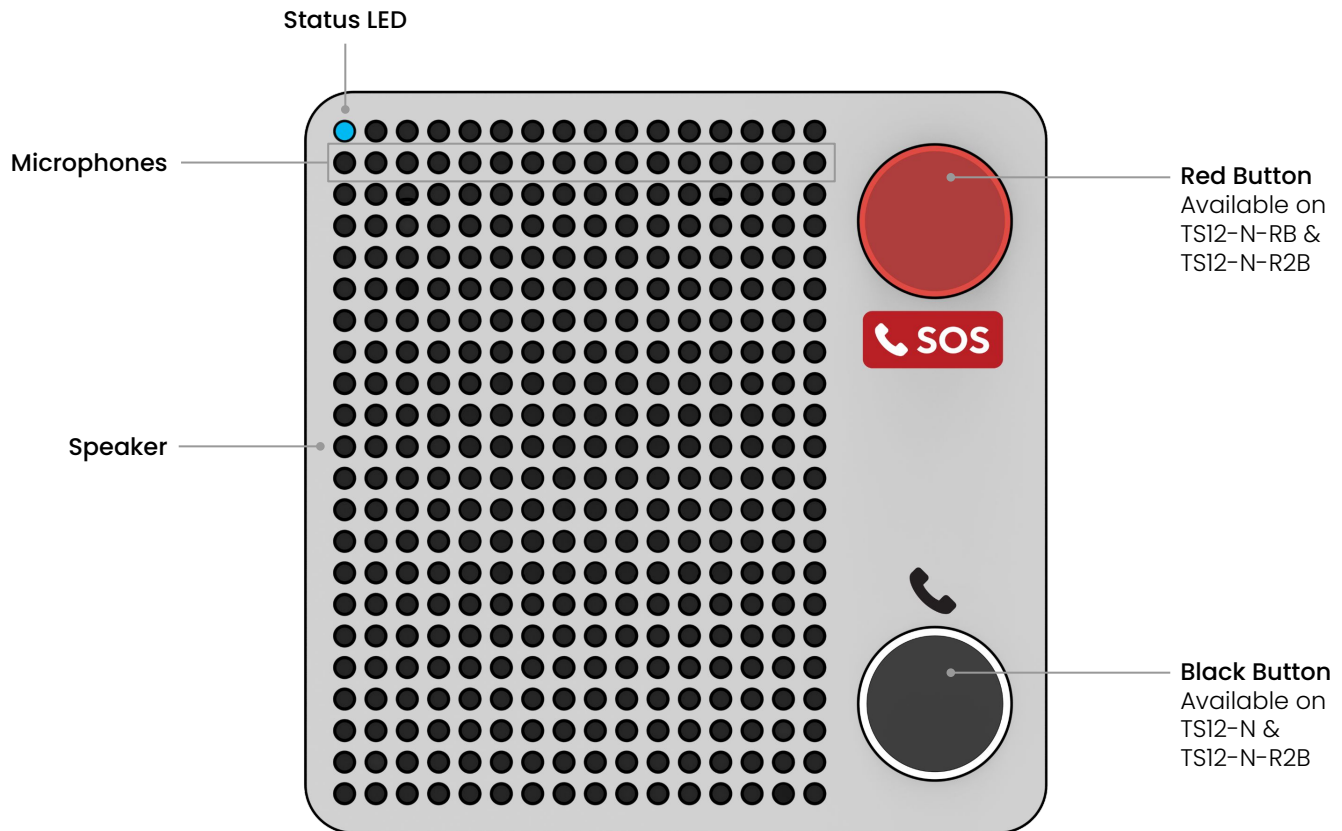
## Status LED Behaviors

● **Solid Orange**
Intercom is on and booting up.

☀ **Flashing Orange**
Intercom is updating firmware.

● **Solid Blue**
Intercom is running and online.

☀ **Flashing Blue**
Intercom is running and offline.

## Black Button LED Behaviors

**Pulsing White**
Booting

**Solid White**
Ready for call

**Spinning Blue**
Calling

**Solid Blue**
Call connected

**Solid Green**
Unlocked

## Red Button LED Behaviors

**Pulsing White**
Booting

**Solid Red**
Ready for Call

**Pulsing Red**
Calling

**Solid Blue**
Call connected

**Solid Green**
Unlocked

# Overview: Back



**PoE In**
Ethernet (RJ45)

**I/O Connector**
Input / Output

| | | |
|---|---|---|
| **Audio Output** | Amp / Line Out + | |
| | Amp / Line Out − | |
| **Ground** | Ground | AUDIO+ |
| | | AUDIO− |
| **Output Relay** | Normally Open | GND |
| | Common | NO |
| | Normally Closed | COM |
| | | NC |

**I/O Terminal Block**
Front

| | | |
|---|---|---|
| **RS-485** | RS-485 A | A |
| | RS-485 B | B |
| **Reader Power** | 12V + | V+ |
| | Ground | GND |
| **Inputs 1-2** | Input 1 | IN 1 |
| | Input 2 | IN 2 |

**I/O Terminal Block**
Back
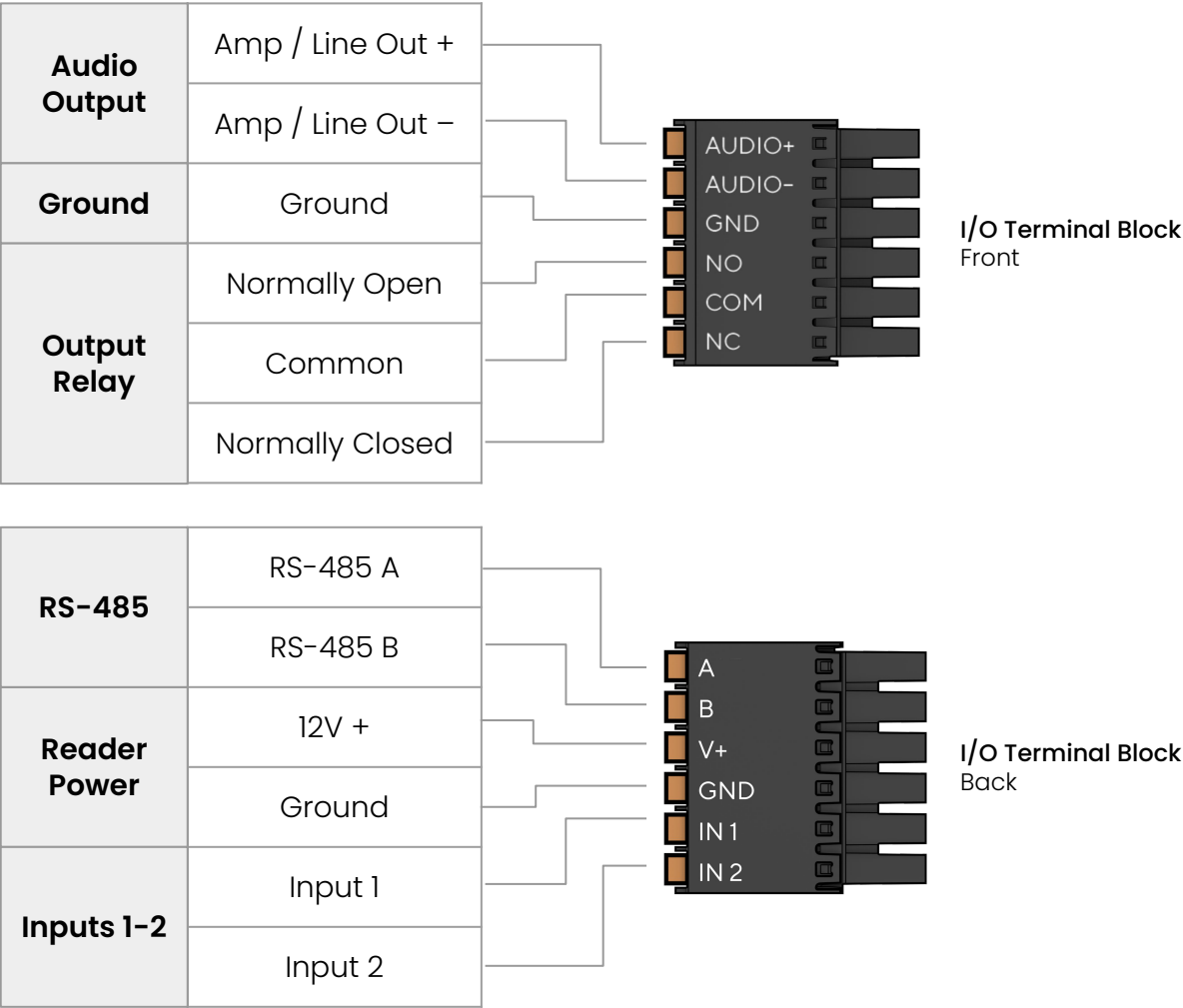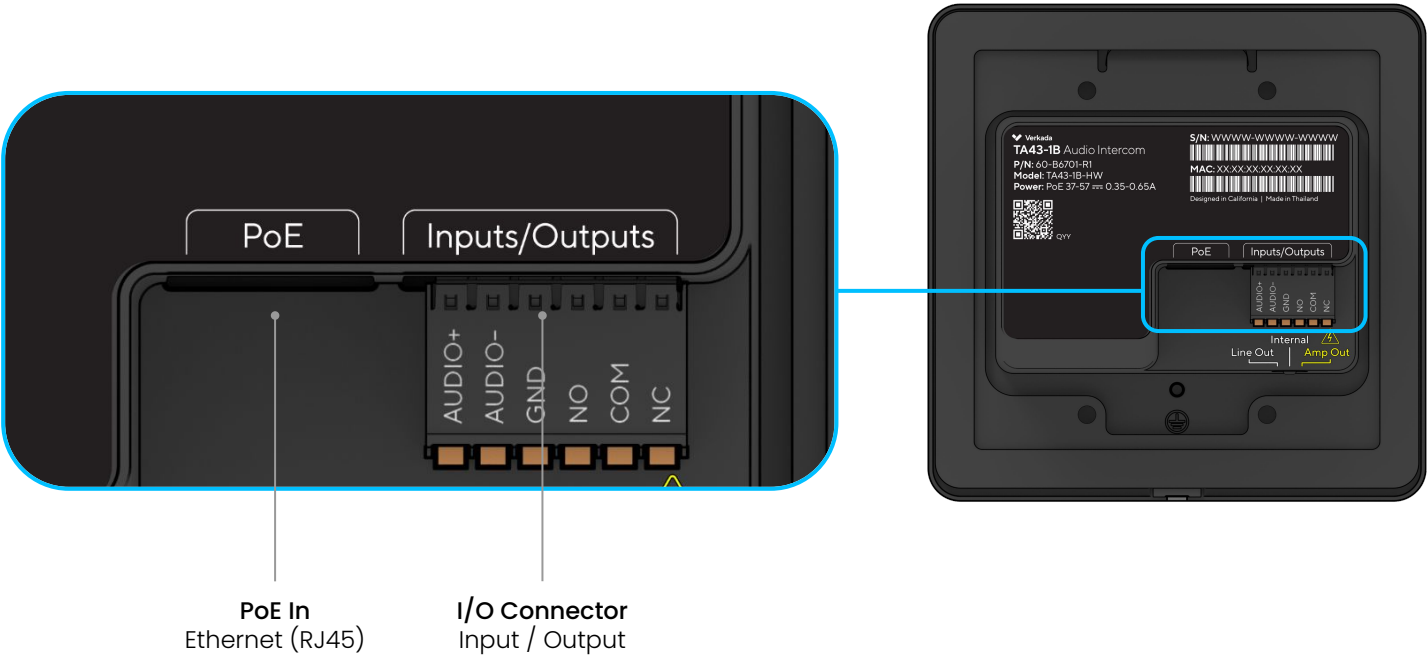
Preparation
# Connect Device

**Note:** This step can be done after mounting, although registering the product first will ensure it is in working order prior to mounting.

Connect the TS12 to your network using the Ethernet port located behind the cable door on the device.

For easy registration and setup, scan the QR code on the product.

If you prefer to manually register your product, please proceed to: [verkada.com/start](verkada.com/start)

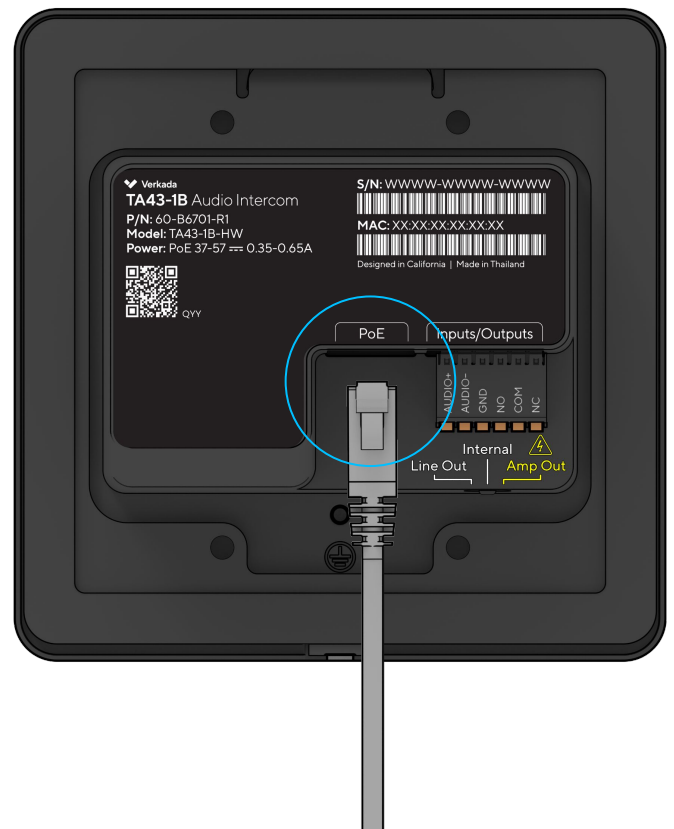Enter the serial number printed on the back of the device, the packaging, or the order number.

# Mounting Options

The Square Audio Intercom requires a double gang sized cutout in the mounting surface. It can be fastened directly to a double gang box or directly to the wall surface using the included mount plate.. The following pages outline both installation options.

## Direct Wall Mounting



## Double Gang Junction Box Mounting



## Mount Plate

The mount plate has hole patterns for the following mounting conditions:

**A**  Direct Wall Mounting
**B**  Double Gang Junction Box Mounting
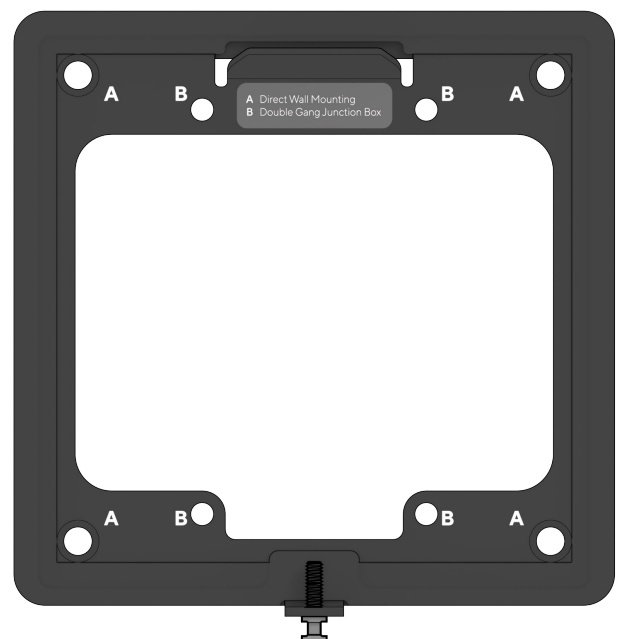
# **Direct Wall Mounting** 1/2

Loosen the security screw and remove the mount plate from device.
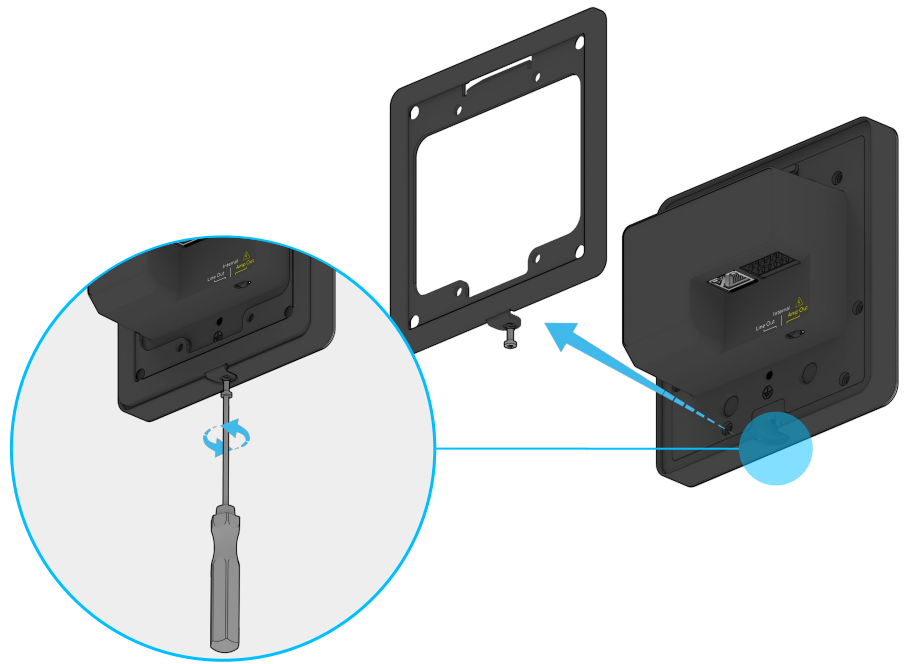


Use the mount plate as a template to mark mounting holes (A) and the center cutout.

Drill 5/64 inch (2mm) pilot holes. If using wall anchors, drill 1/4" (6mm) pilot holes.



A   Direct Wall Mounting
B   Double Gang Junction Box
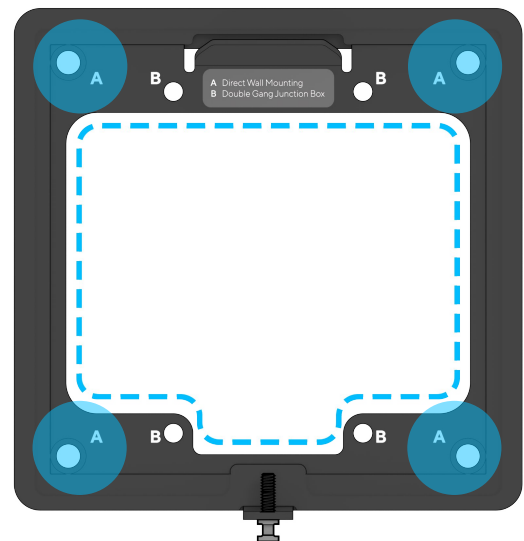
Use the wall screws to secure the mount plate onto the wall.
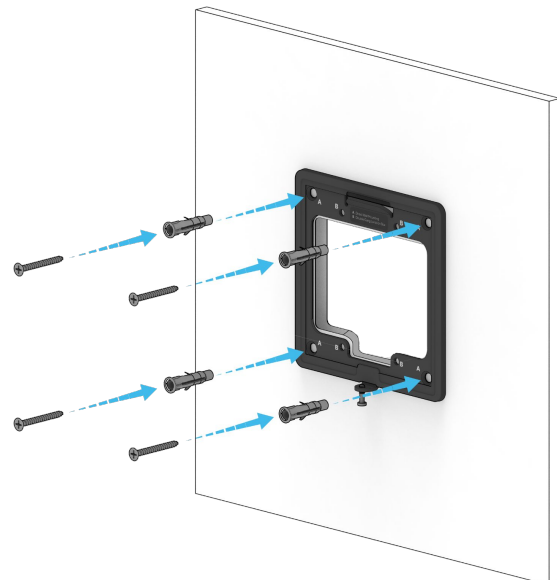
# **Direct Wall Mounting** 2/2

Route the ethernet cable through the mount plate and plug it into the device.
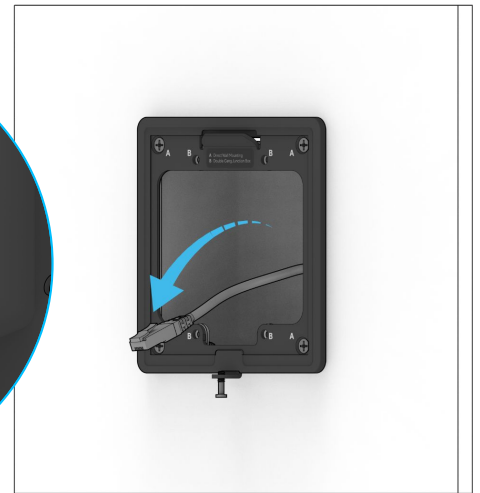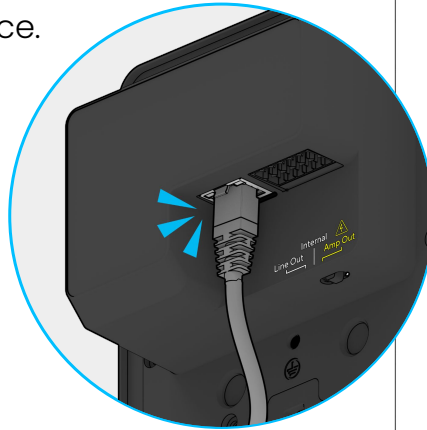
Hook the device onto the mount plate.
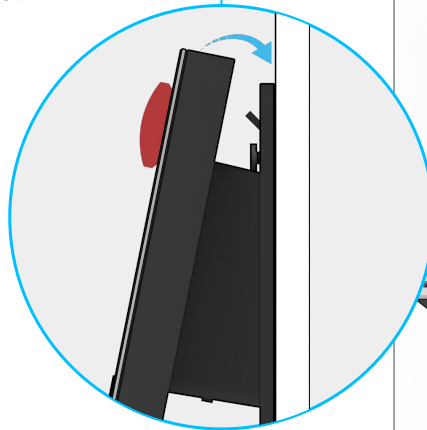
Tighten the security screw with the T10 Torx Security Screwdriver.
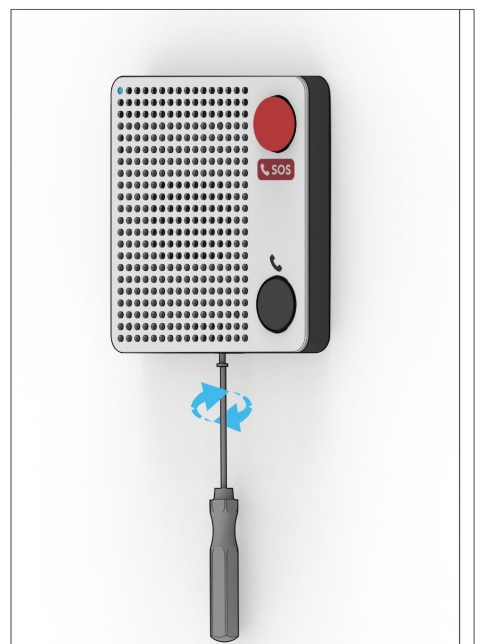
# Double gang junction box mounting 1/2

Loosen the security screw and remove
mount plate from device.
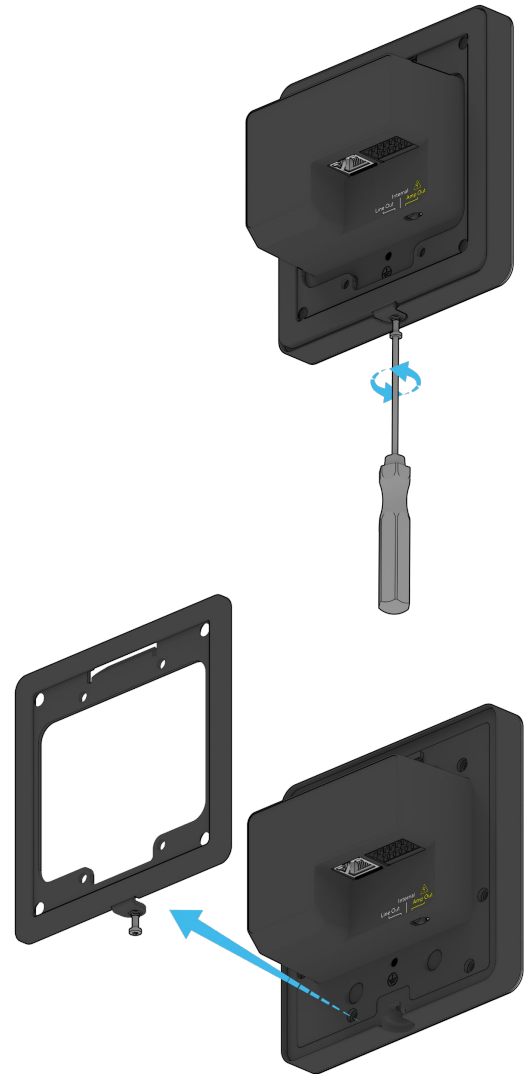
Install mount plate on junction box using
#6 or #8 junction box screws.
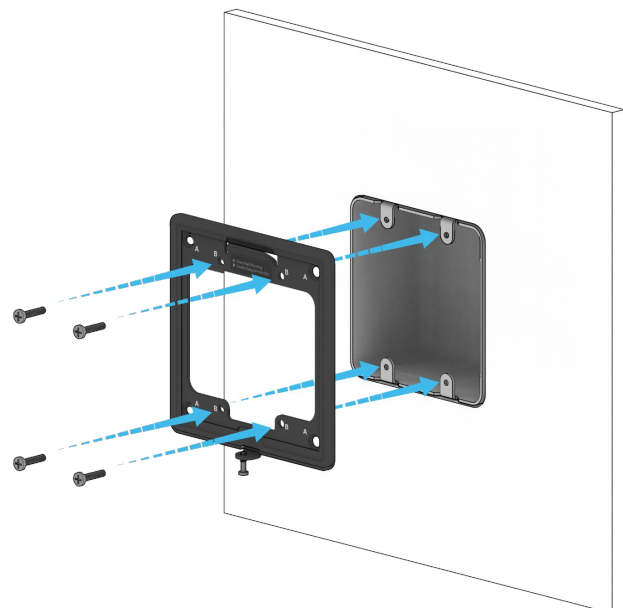
# Double gang junction box mounting 2/2

Route the ethernet cable through the mount plate and plug it into the device
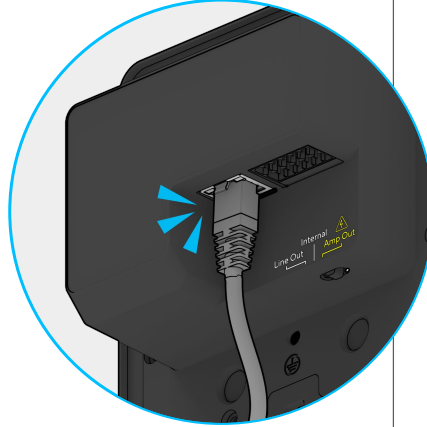


Hook the device onto the mount plate.
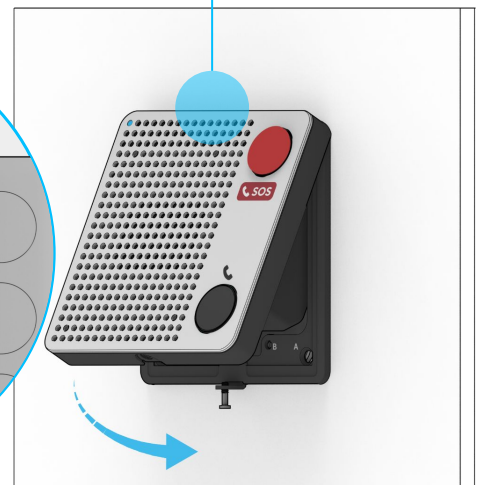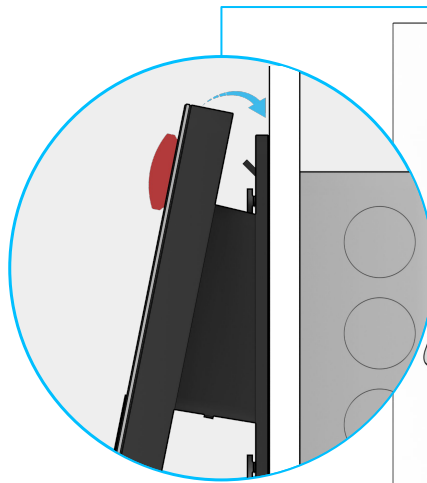


Tighten the security screw with the T10 Torx Security Screwdriver.
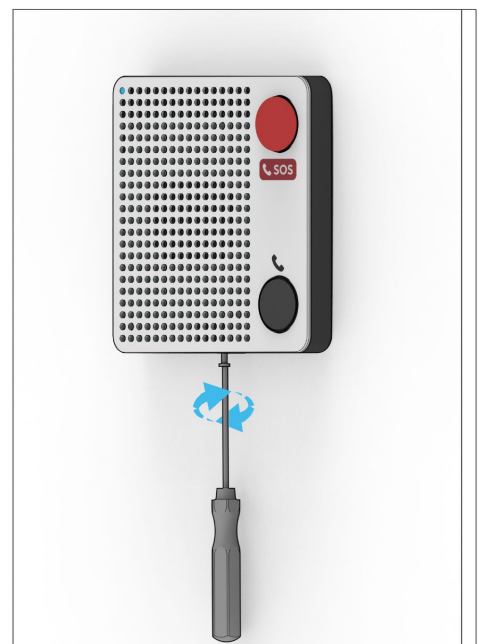
# External Speaker Connection

## Wiring diagram

Speaker | TS12



AUDIO+
AUDIO-
GND
NO
COM
NC

## Power selection



Internal
Line Out | Amp Out

Intercom provides line level audio to the external speaker. Requires external audio amplifier.

Internal
Line Out | Amp Out

Intercom provides amplified audio to the external speaker.

⚠ **Warning**

High voltage can damage the speaker if it has its own onboard amplifier. Recommended speaker impedance is 4Ω or 8Ω.
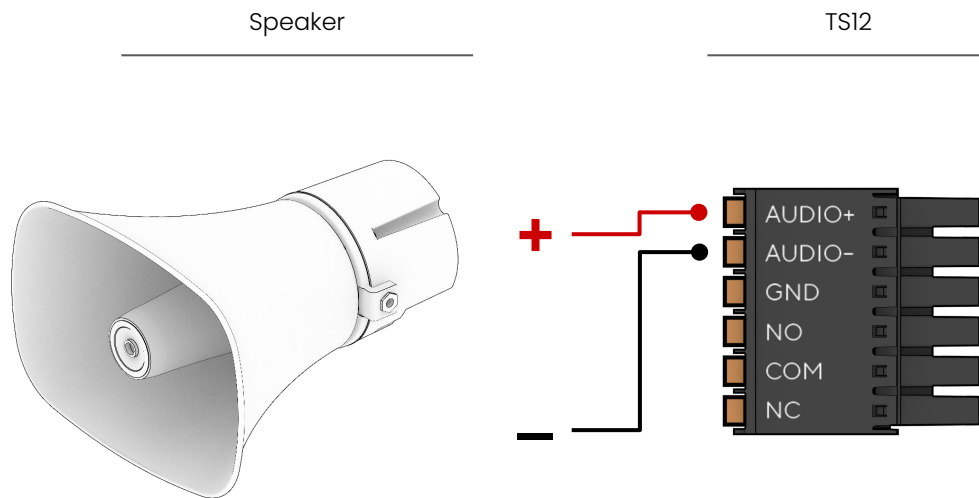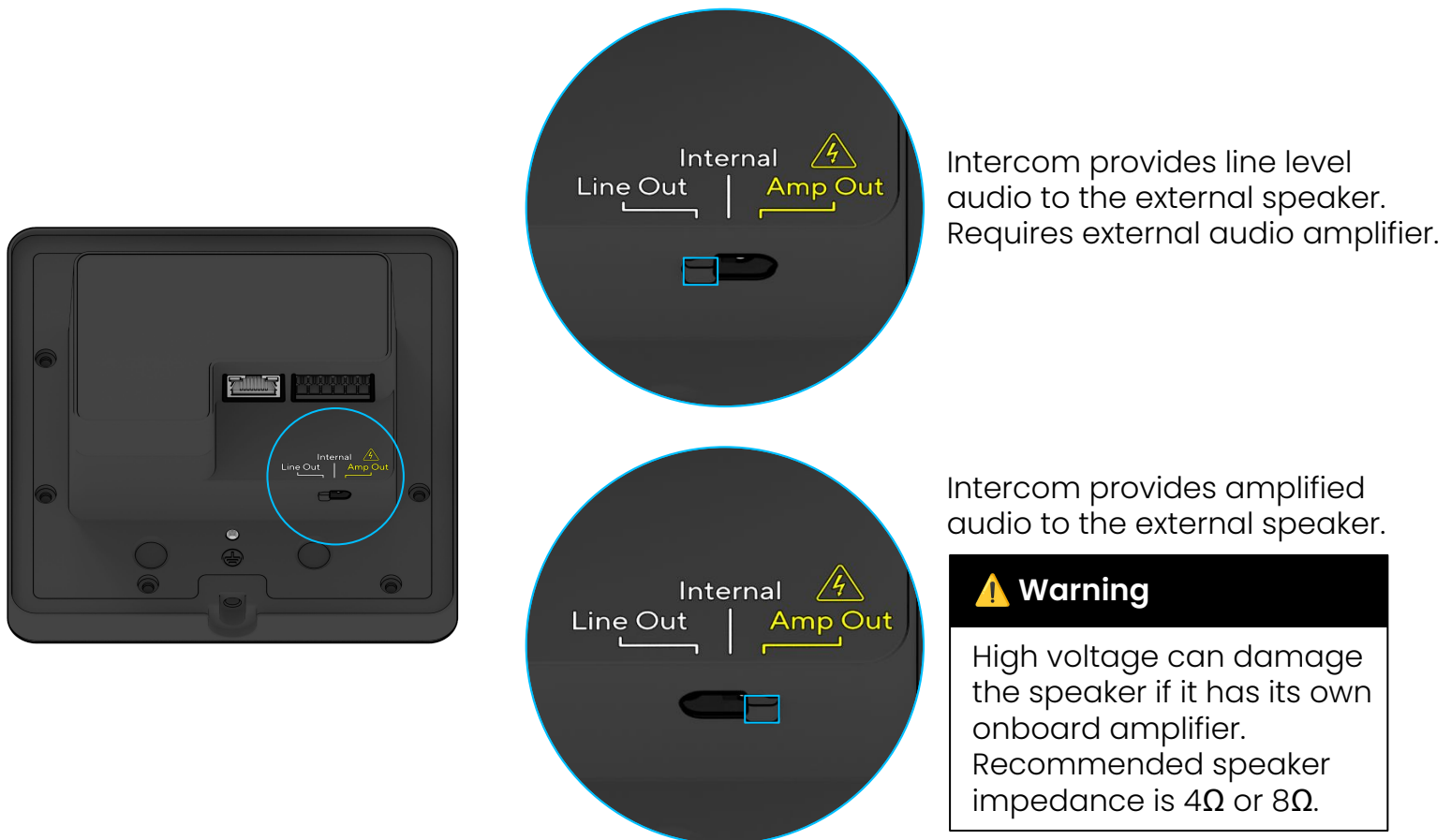
# Wiring Instruction

## Reader

The TS12 is rated to power Verkada readers at 12V and 250mA via the (+) and (–) connection. It is recommended that the drain wire be connected to earth ground at the reader side. Note: 12V power should not to be used to power other peripheral devices, as it has latch-off current limiting.

Verkada / RS-485 Reader                                        TS12



| A |
| B |
| V+ |
| GND |
| IN 1 |
| IN 2 |

**Note:** Cables are recommended to be shielded.
WHITE = A
**GREEN** = B
**RED** = 12V+ Power Positive
**BLACK** = 12V- Ground/Negative



Internal
Line Out | Amp Out

Grounding
Screw

#8-32 x 0.25"
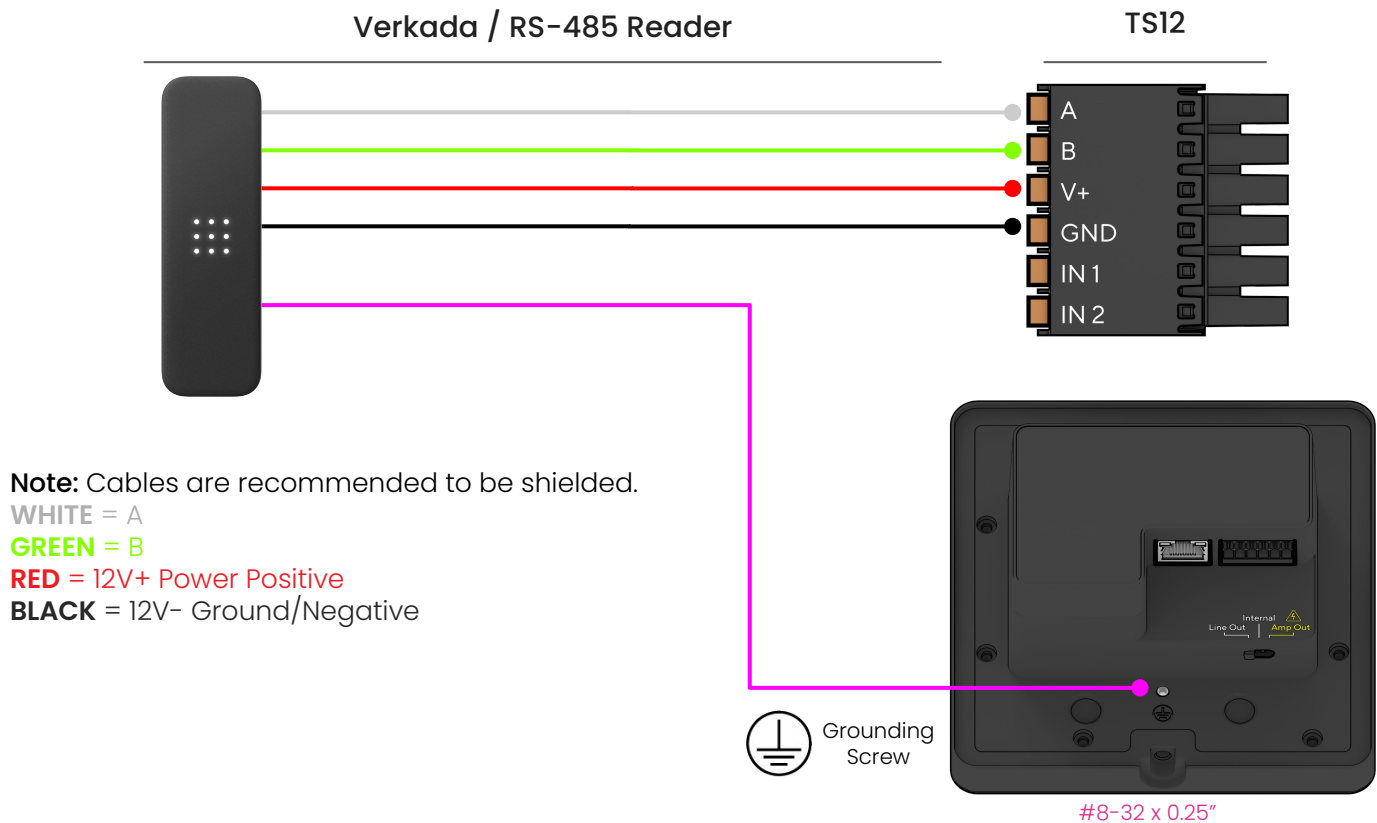
## Inputs

The TS12 has two general purpose dry inputs. Devices commonly connected to these dry contacts include Door Position Indicator (DPI), Request to Exit (REX), and external call triggers.  Both inputs are expected to be **NORMALLY OPEN** (NO). For each input, one wire should be connected to the associated IN pin, and the other to the GND pin. All associated events will be logged in Command.
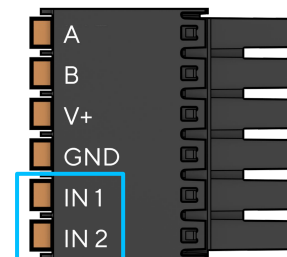
Note: When configuring the TS12 as an single door controller, the DPI should be connected to IN 1, while the REX should be connected to IN 2. Call Trigger can be connected to either IN 1 or IN 2.

| A |
| B |
| V+ |
| GND |
| IN 1 |
| IN 2 |

# Wiring Instruction

## Output

The TS12 has one dry form C relay output, which can be used to trigger a door lock by connecting an access power controller to the output terminal as detailed below. The output relay can also be used as a general purpose output. For fail safe locks, + should be connected to NC to be locked by default.  For fail secure locks, + should be connected to NO to be locked by default.

**Fail Secure**

| TS12 | Access Power Controller | Lock |
|---|---|---|

TS12
Input: IN 2, IN 1, GND
RS-485: +, A, B, -
Output: NC, COM, NO

Access Power Controller
Input: IN, GND
Output: NC, COM, NO

Lock: +, −

**Fail Safe**

| TS12 | Access Power Controller | Lock |
|---|---|---|

TS12
Input: IN 2, IN 1, GND
RS-485: +, A, B, -
Output: NC, COM, NO

Access Power Controller
Input: IN, GND
Output: NC, COM, NO

Lock: +, −
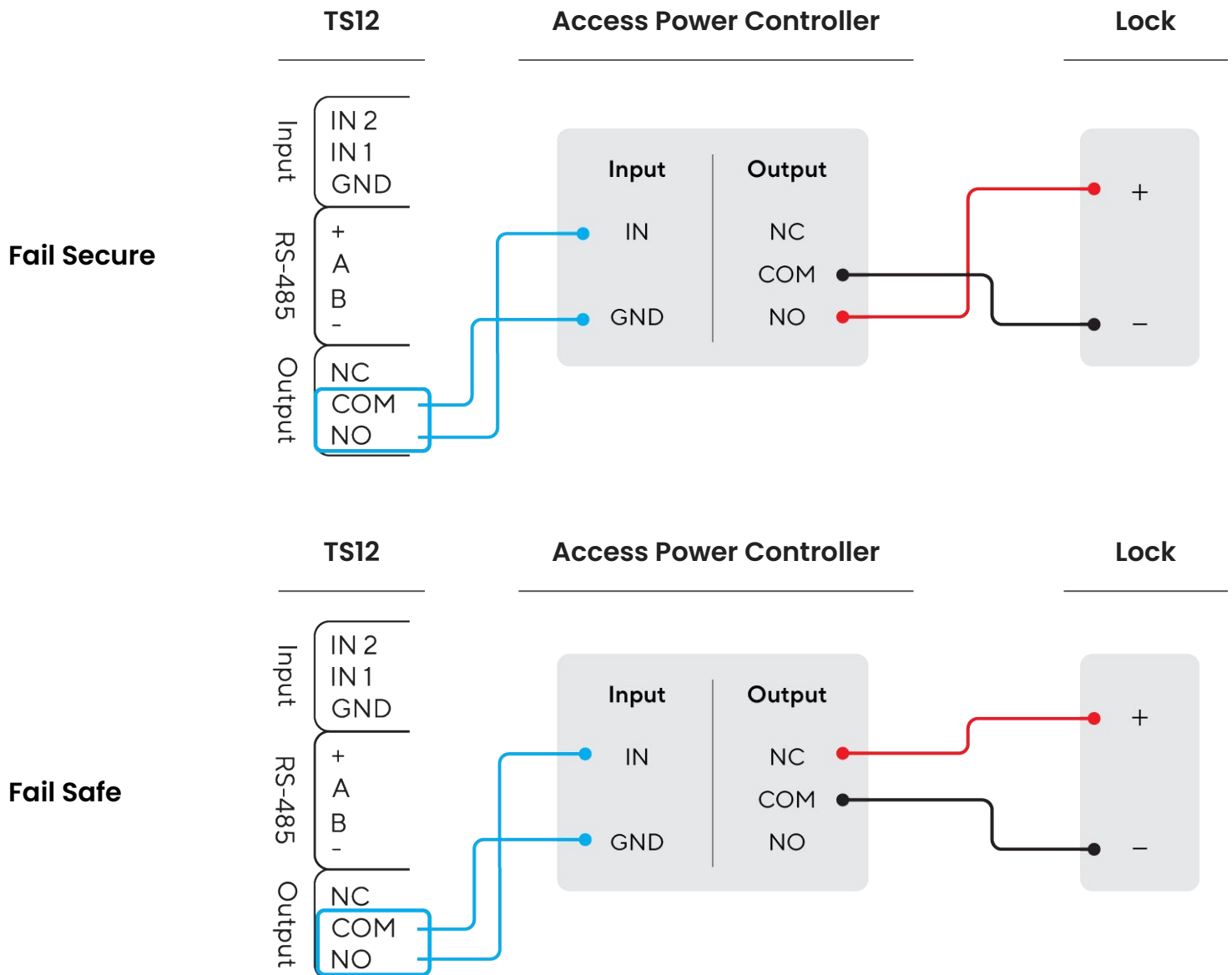
**Note:** To maintain UL294 compliance all devices connected to TS12 should be UL 294 and ULC 60839-11-1 Listed

# **Compliance** 1/2

| | |
|---|---|
| **FCC Compliance** | This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:<br><br>(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.<br><br>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.<br><br>These limits are designed to provide reasonable protection against harmful interference in a residential installation.<br><br>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.<br><br>However, there is no guarantee that interference will not occur in a particular installation.<br><br>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 of the following measures:<br><br>• Reorient or relocate the receiving antenna.<br>• Increase the separation between the equipment and receiver.<br>• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.<br>• Consult the dealer or an experienced radio/TV technician for help.<br><br>**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.<br><br>This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. |
| **IC Statement** | This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions:<br>(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.<br><br>Le présent appareil est conforme aux CNR d' ISED applicables aux appareils radio exempts de licence.<br><br>L'exploitation est autorisée aux deux conditions suivantes :<br>(1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable. |

Appendix
# **Compliance** 2/2

| **Caution** | 1. The device is only to be connected to PoE networks without routing to outside plants. |
| --- | --- |
| | 2. Please contact authorized dealers for power adapters. |
| | 3. This device is intended to be supplied by an UL Listed PoE (Power over Ethernet) power source. |
| | 4. If powered by a power adapter, the adapter should be properly grounded. |
| | 5. This device shall connect to the ground with a green-yellow striped grounding wire and the part connecting the conductor must be minimum 18AWG. |

Appendix
## Support

Thank you for purchasing this Verkada product. If for any reason you're experiencing issues or need assistance, please contact our 24/7 Technical Support Team immediately.

Sincerely,
The Verkada Team
[verkada.com/support](verkada.com/support)