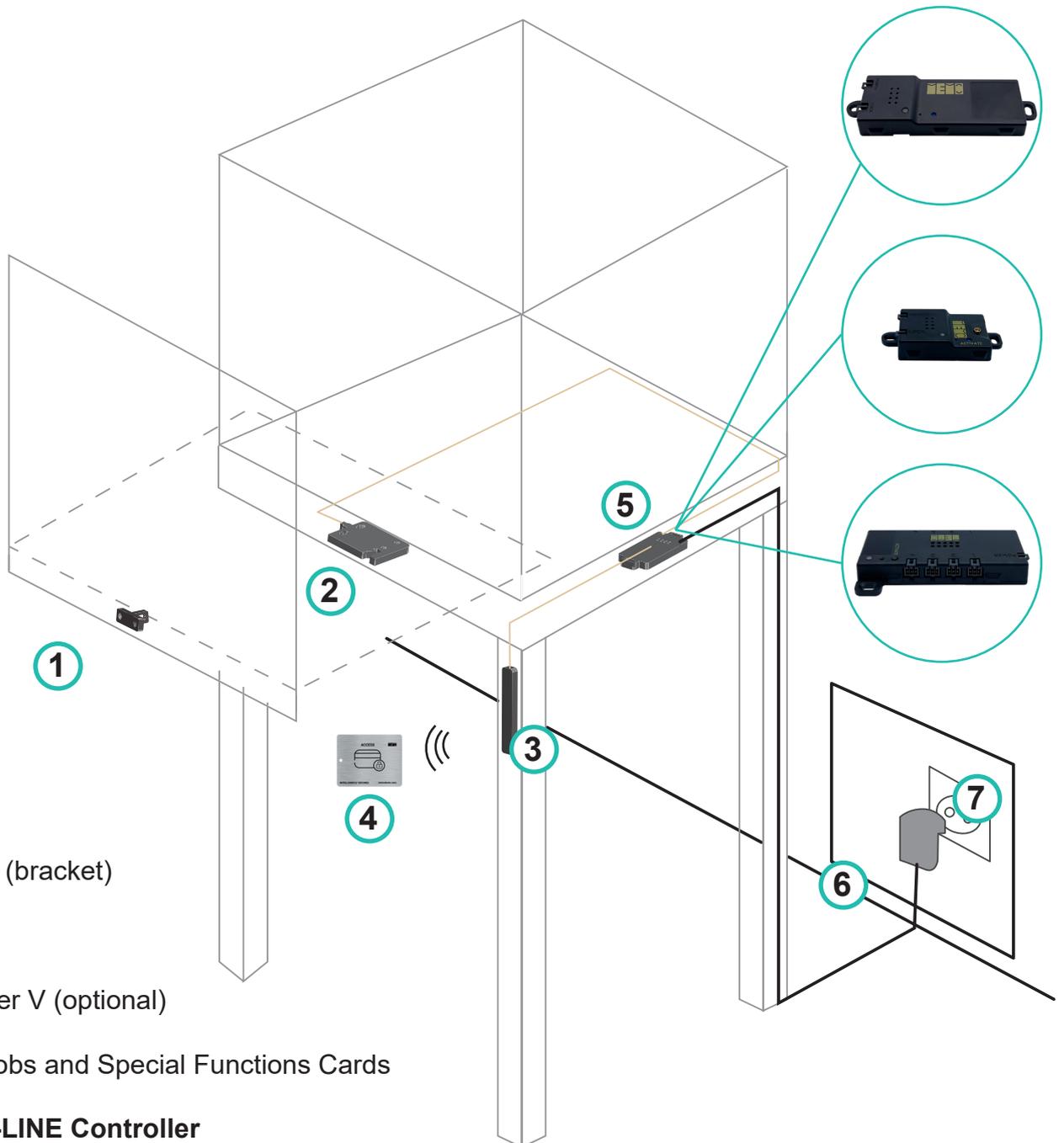# MEMO INSTALLATION GUIDELINE
AIR2 FURNITURE LOCKING & SECURITY SYSTEMS

This guideline is specifically showing the installation of MEMO´s AIR2-LINE controllers and locks. This document is applicable for all MEMO AIR2-LINE CONTROLLERS, readers and locks in principal.

1. Latch (bracket)

2. Lock

3. Reader V (optional)

4. Key fobs and Special Functions Cards

5. AIR2-LINE Controller

6. Power Supply

7. Wall Socket

AIR2 - CONTROLLERS

All AIR2 Controller models combine compact size with powerful and flexible functionality.

- EASY SETUP in the carpenter workshop.
- FLEXIBE CONFIGURATION according to clients SECURITY & CONVENIENCE policy.
- MOBILE APP key & feature management free of charge.
- ENHANCED FEATURES & SERVICES on subscription base.

AIR2 - CONTROLLER VERSIONS

AIR2ONE INTERNAL READER

Controller & Reader in **ONE** compact device, driving **ONE** electronic lock. The combined elements simplify and speed up installation - the most cost effective system for standard show case designs.

AIR2MINI

Even smaller than the AIR2ONE, this unit offers connection to **ONE** external reader and **ONE** electronic lock. Choose the best BATCH POINT position, independent from controller placement.

AIR2FOUR

The AIR2FOUR Controller can replace FOUR AIR2ONE devices – obviously reducing space requirement, installation efforts and costs significantly.

FOUR external readers and **FOUR** electric locks can be totally flexible assigned – enabling various applications.

PLAN YOUR INSTALLATION

CONSIDER MOUNTING POSITIONS OF CONTROLLER, READER & LOCKS

These considerations are very important for secure storage and convenient handling.

- Chose a CONTROLLER POSITION which is SECURE against manipulation;
- Consider ACCESS to the components for Maintenance.
- Plan BATCH POINT POSITIONS, convenient in reach.
- Prepare space and routing for DEVICES & CABLES.
- Plan and document a PLAN-B opening option for Locks. (page 10)

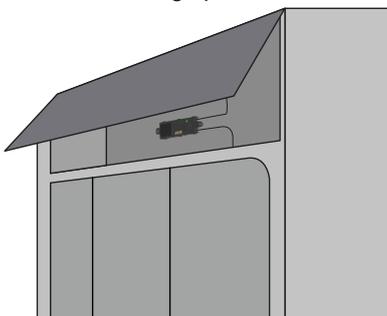**ATTENTION: NEVER place a Controller behind electronically locked doors/drawers.**

RECOMMENDED AIR2 MINI & AIR2FOUR CONTROLLER POSITIONS

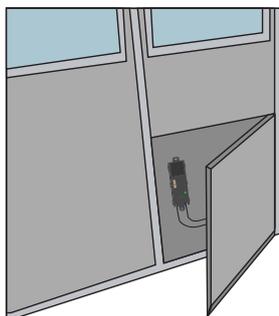All places which fulfill the before mentioned requirements are good, pictures show typical examples.

Correct controller installation behind the panel.
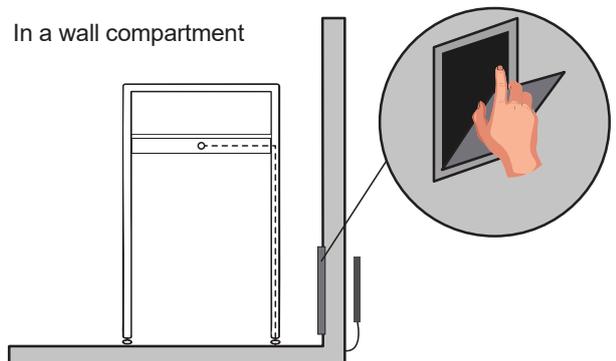

In a floor compartment
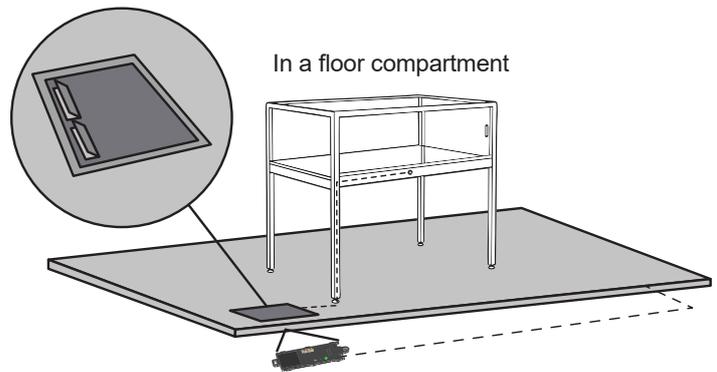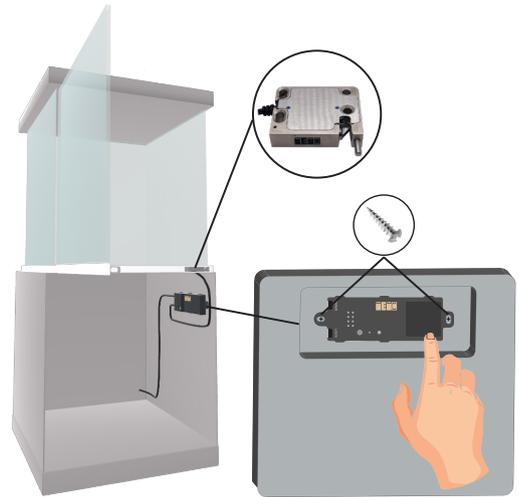
Behind logo panel
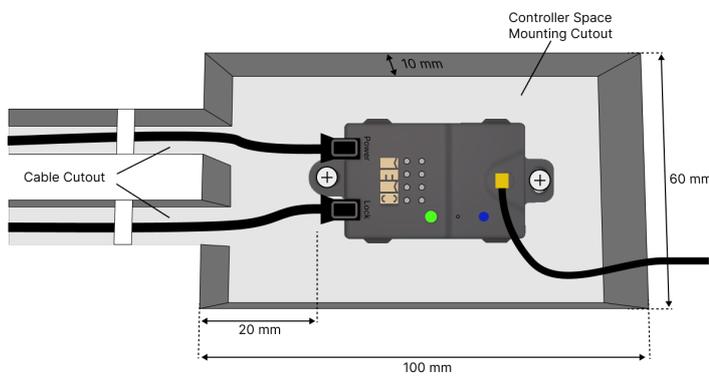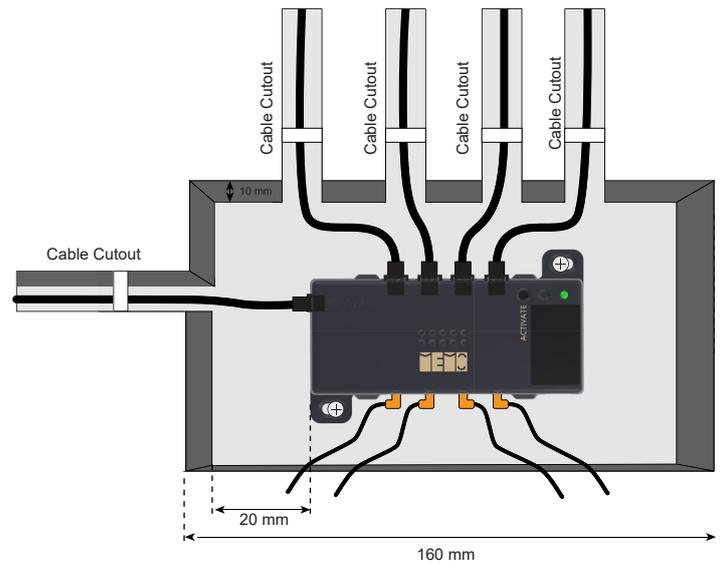
At the back wall of cabinet

In a wall compartment

These Controller models both have external readers – so the controller position is independent from batch-point. Security against manipulation and easy accessibility shall be the priority when choosing a position inside a furniture or any compartment.

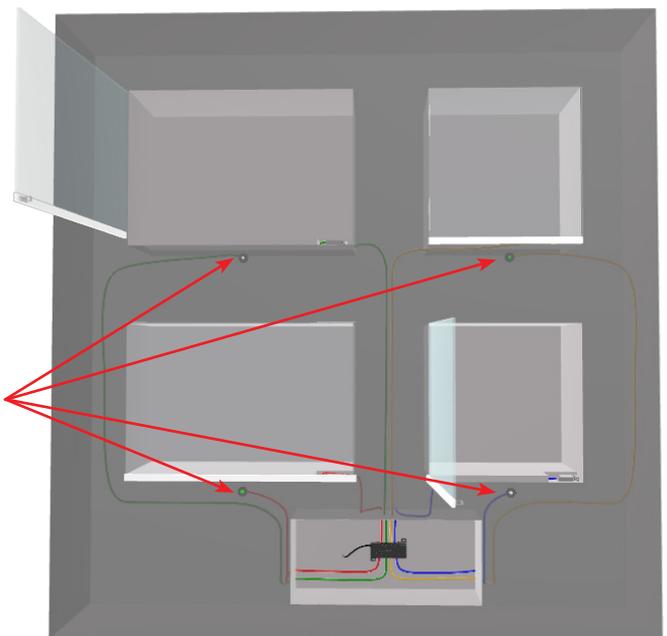**AIR2MINI**   **AIR2FOUR**

Controllers need free space around for maintenance and ventilation!

**AIR2MINI at Back-Panel**   **AIR2FOUR at Back-Panel**

Batch-Points

RECOMMENDED AIR2ONE CONTROLLER POSITIONS

The AIR2ONE has READER & CONTROLLER combined in one device. This reduces the number of components and simplifies installation but requires to position the device right at the BATCH POINT - this is the spot where users present the ACCESS KEY.

Either FRONT or SIDE panels are suitable and the batch point shall not be too far high up and down.
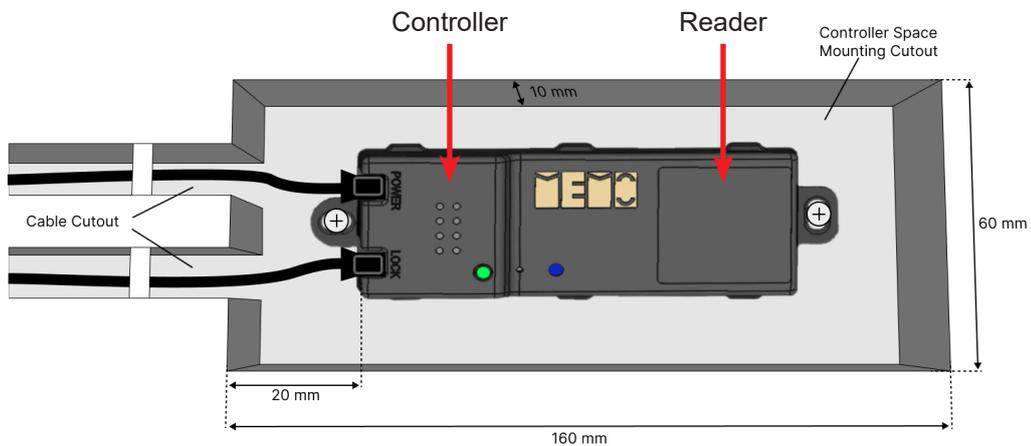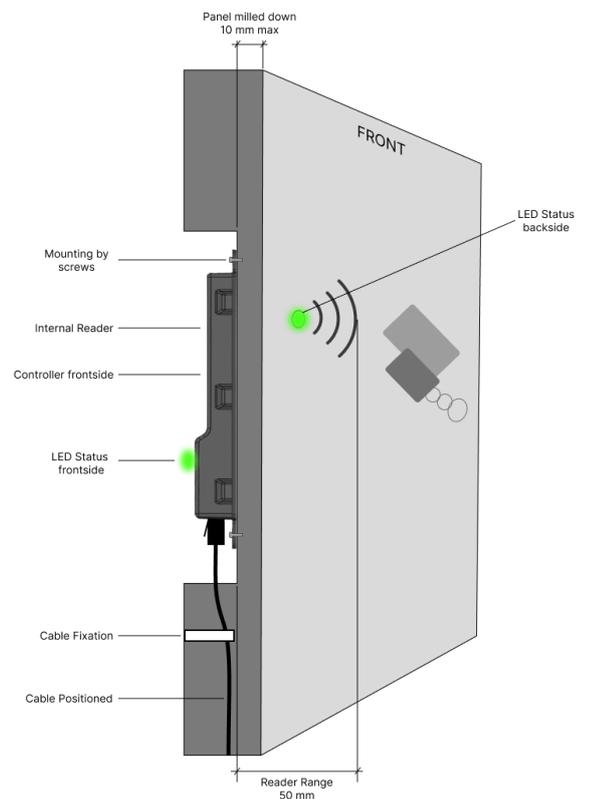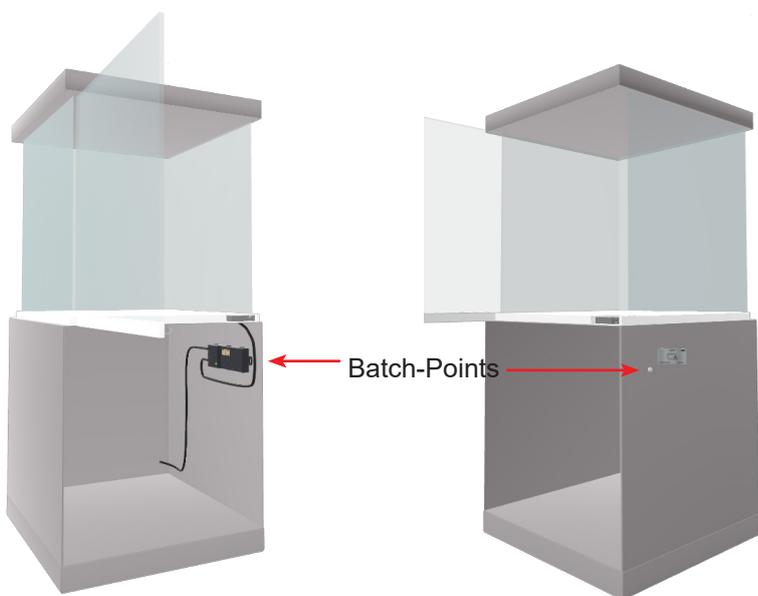

Controllers need free space around for maintenance and ventilation!

At Side-Panel   **At Front-Panel**   **Inside the Panel**   **Front the Panel**

Batch-Points

Panel must be milled down to 5mm for good key reading!

RECOMMENDED READER POSITIONS

Consider reader position regarding

- User Handling
- Reading Range
- Surface Protection
- Surrounding Materials
- Reader & Cable Fixation

Convenient User Handling

Consider that position of reader in a show case must be in the convenient range of reach by short and tall users.

Readers should be installed in a final height between 100 and 140cm, exceed these measures only in special cases.

140 cm

100 cm
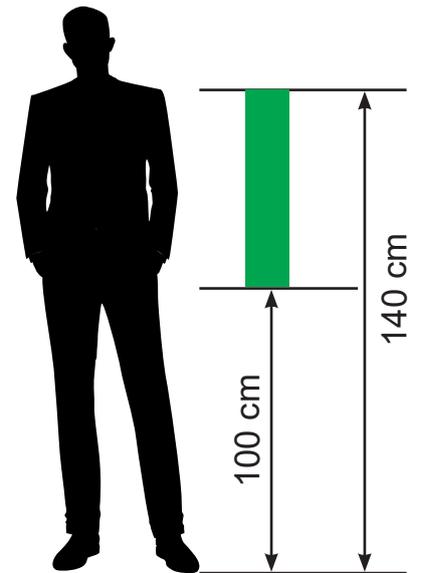
100-140 cm = 40 -55 inches

Best Surface Protection

Presenting a key at a distance to the surface works perfectly fine when installation is done correct.

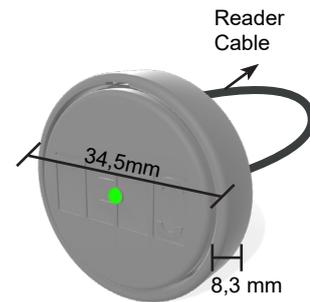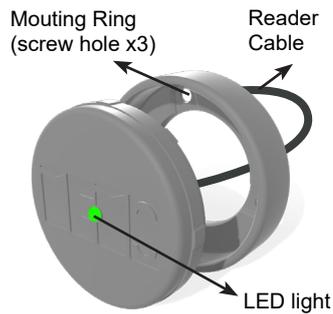Nevertheless, some users touch and scratch the surface when presenting a key!

Select a reader position, facing downwards is recommended whenever possible! Optimizing the READING RANGE is protecting surface.
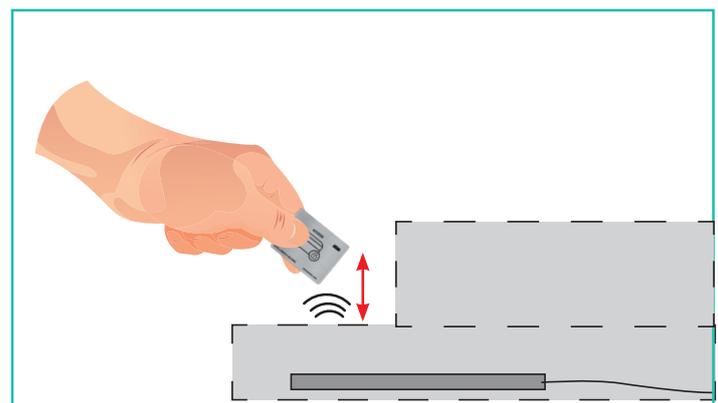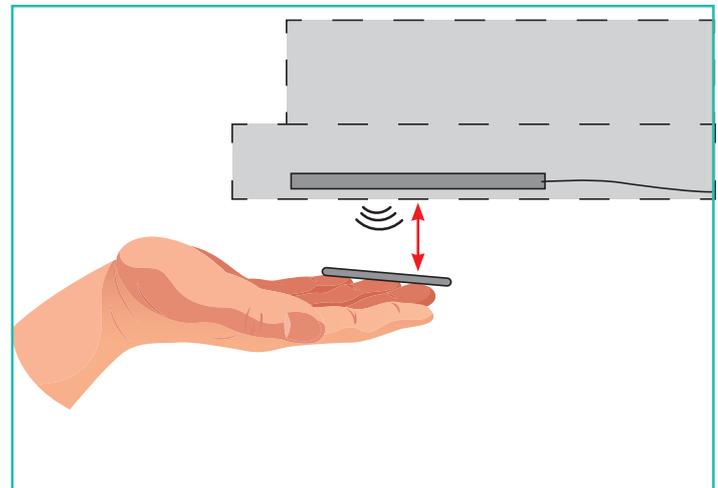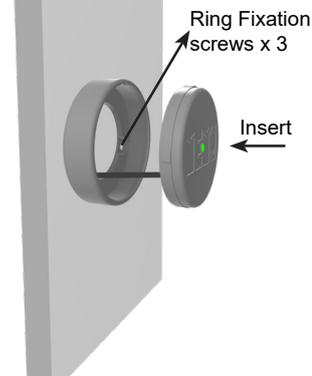
READER MODEL VII INSTALLATION – outside mounting

This reader model provides LED status signals and mounting ring with clip-in fixation for dual installation use – inside & outside the panel.

Outside the Panel

Mouting Ring
(screw hole x3)

Reader Cable

LED light

Reader Cable

34,5mm

8,3 mm

A) Outside the Panel

INSIDE   OUTSIDE

Reader
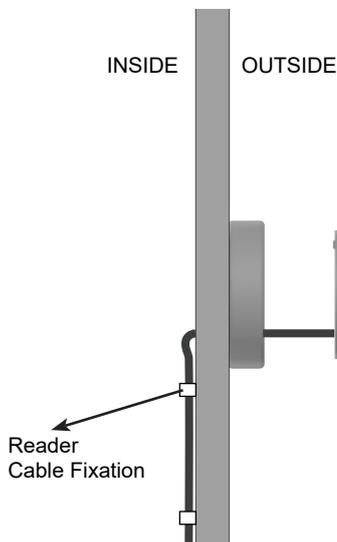Cable Fixation

Ring Fixation
screws x 3

Insert

FINAL MOUNT

READER MODEL VII INSTALLATION – inside mounting

This reader model provides LED status signals and mounting ring with clip-in fixation for dual installation use – inside & outside the panel.
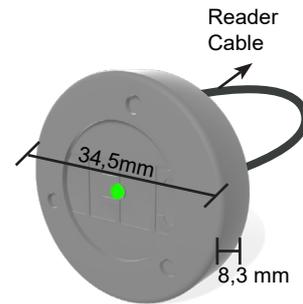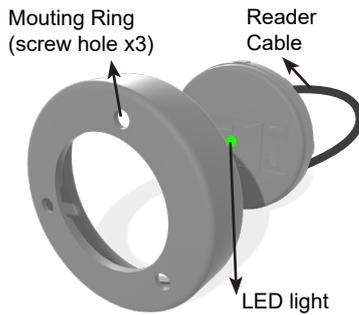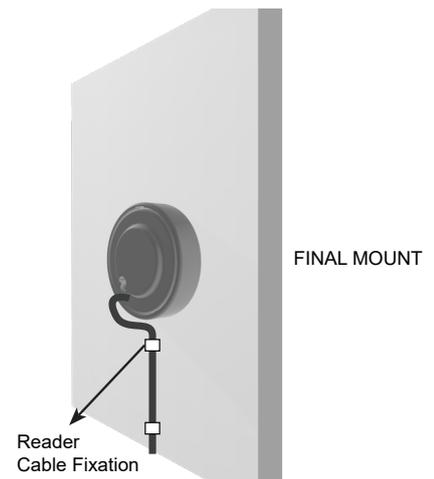
Inside the Panel

Mouting Ring (screw hole x3)

Reader Cable

LED light

Reader Cable

34,5mm

8,3 mm

B) Inside the Panel

Ring Fixation screws x 3

INSIDE   OUTSIDE

Insert

Reader Batchpoint

FINAL MOUNT

Reader Cable Fixation
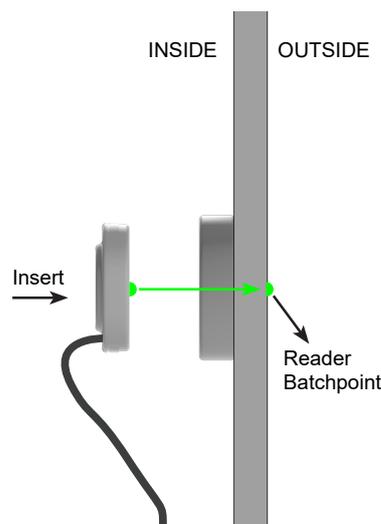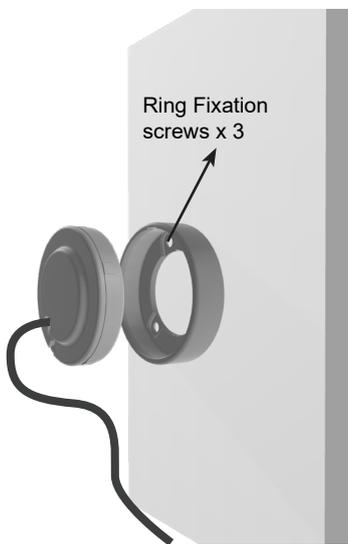
RECOMMENDED LOCK POSITIONS

Consider Lock Position

- Best Lock Operation
- PLAN B Opening
- Manipulation Security
- Adjustability in all 3 Dimensions
- Cable Routing & Fixation

Recommended lock position - BOTTOM

Consider the position of a Lock shall be close to the door handle for best application of force. On high show cases, this will be at the bottom panel.

When Lock position was planned well and Lock / Latch-adjustment is done correctly, even settling doors will still guide the latch into the lock.

Considering the best position for the lock is essential for long maintenance intervals!

### Recommended Lock position – Side Panel

The vertical lock position is also a suitable option that works well with settling doors.

Settling doors will rest with the latch in the lock mouth. Pushing the door inwards will still result in proper locking.

Not Recommended Lock Position – TOP

Consider the horizontal lock position dangerous because settling down doors will cause the latch to go lower and lower and may go out of the tolerated range.

Settling down doors will cause the latch going deeper and may go out of the tolerated adjustment range!

15 mm

RECOMMENDED

NOT RECOMMENDED
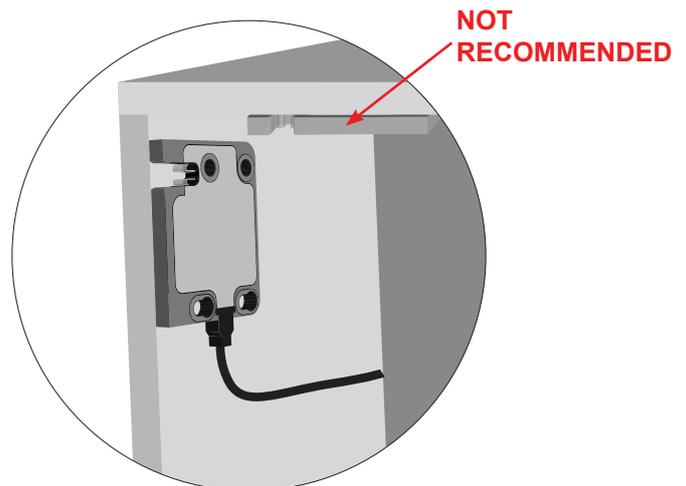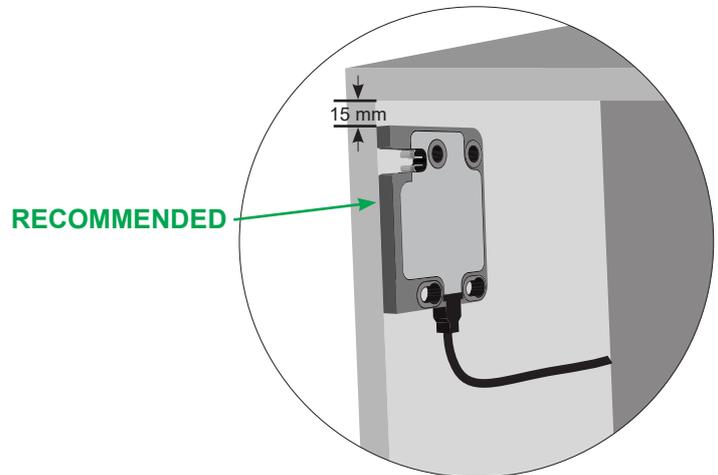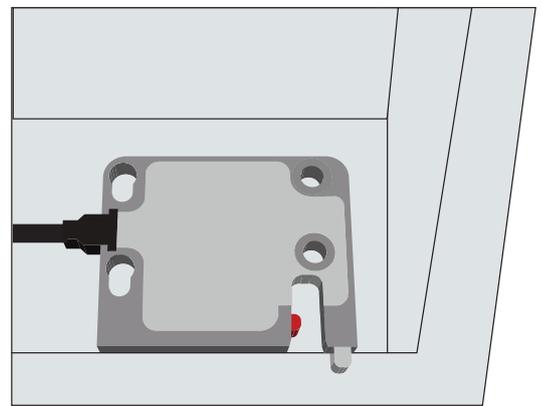
PLAN-B LOCK OPENING SOLUTIONS

In order to open a furniture door in case of lock malfunction, an alternative access must be planned. Test proper function of your individual Plan-B on a mock-up before production starts.

Plan B opening must be easy for maintenance technician with their tool set but difficult and time consuming for criminals!

Plan-B opening – Example 1

Mount the lock on a small Sub-Board and fix it with screws from underneath.

At lock malfunction, remove the screws and pull the door open - sub board and lock will move out with the door.

**Consider available cable length to pull the board out wide enough.**
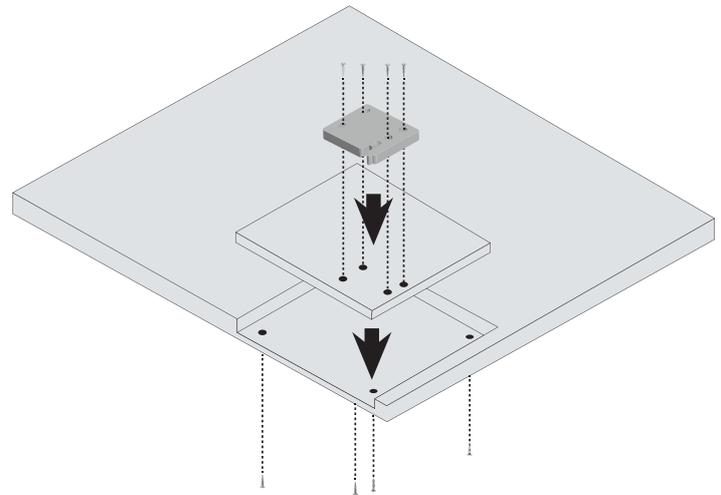
Plan-B opening – Example 2

Preparing a drill-hole through the base plate exactly underneath the lock bolt - but do NOT drill all the way through panel.

In case of lock malfunction, the hole can be drilled completely. Insert a screwdriver and push it through the hole. A rotating move can push the bolt back and door can be open.

Do NOT drill through the panel completely, otherwise the lock can be manipulated easily!
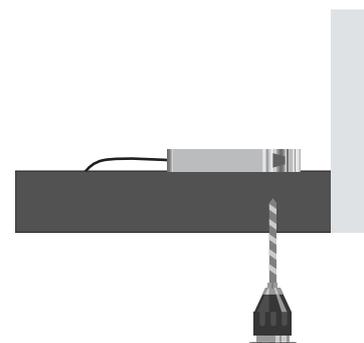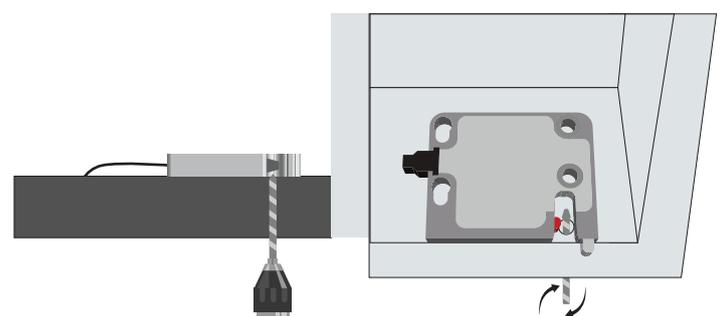
Plan-B opening – Example 3

Preparing the latch fixation in a way to unscrew it from underneath the door frame.

In case of lock malfunction, the screws can be removed and the door can be open.

**Use special screws so that they cant be manipulated easily!**

SHOW CASE PRODUCTION

EMERGENCY OPENING

PLAN CABLE ROUTING & FIXATION

Cable Routing

Plan cable path, cable protection and fixation inside the show case to avoid damages while later use.

Cables must be installed securely in furniture so that moving parts as drawers, door, etc. may NOT cause damage on loose cables and devices.
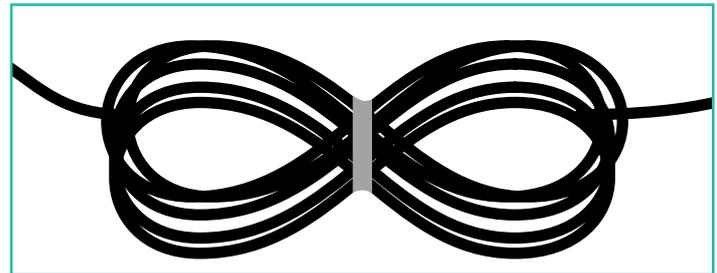
Controller & Cable Fixation

Fixing devices and cables properly does not only look more professional, it also avoids damages on cables and connectors and increases the reliability significantly.
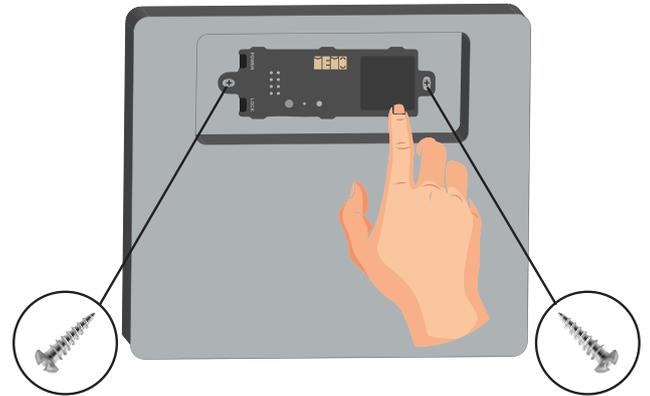
Orderly installation guarantees a proper system function and even spares repair and adjustment expenses.

CONTROLLER INSTALLATION

Fix Controller in cabinet or compartment

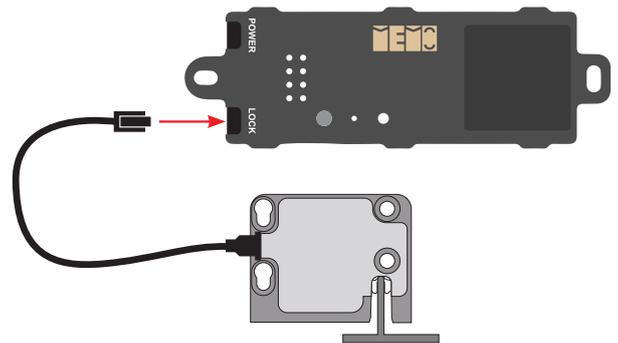Fix it with 2 screws to the designated position.

Loose controller and cables may cause malfunctions and result in avoidable maintenance costs!

Connect Lock and fix it

Plug lock connector to available controller port and make sure it clicks in.

Fix lock in cabinet but do NOT fix latch on door or drawer as long as the system function is not tested!

Connect Reader Cable and fix it (optional)

AIR2MINI and AIR2FOUR models operate with external readers - connect the golden SME screw terminal to the controller by hand.

Screw by hand, do NOT use tools! Cables must be installed securely in furniture so that moving parts as drawers, door, etc. may NOT cause damage on loose cables and devices
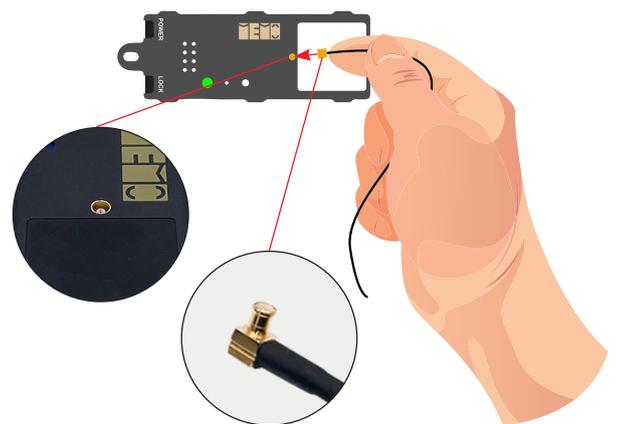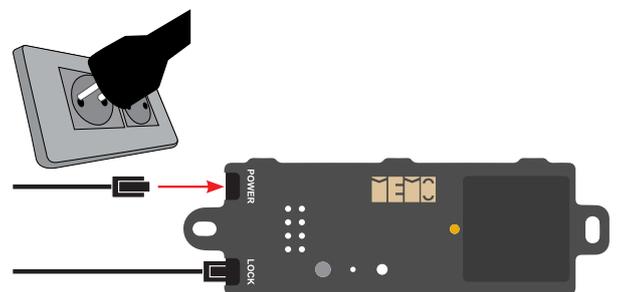
Close all doors and drawers

In case door monitoring is active, close all doors and drawers.

When Door monitoring is required, make sure that only ports with locks connected are active!

Connect Power

Plug connector of power supply to controller and wall plug.

**When power is on the controller, the green LED will be ON.**

TEST THE INSTALLATION

Check Power & Connector
Power connector must be inserted in controller and clicked in – power cord must be pluged in wall socket.

GREEN "Power"- LED ON indicates the controller has power and is ready for operation.

GREEN "Power"- LED OFF indicates there is no electricity at controller or a malfunction happened.
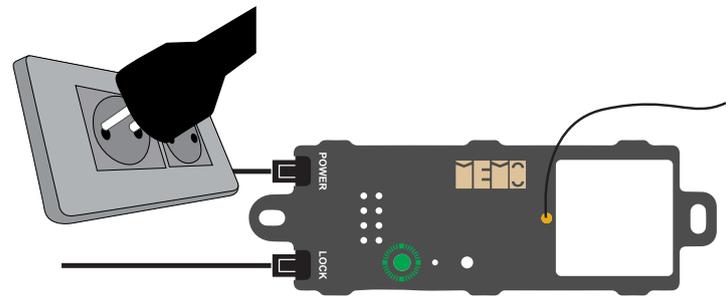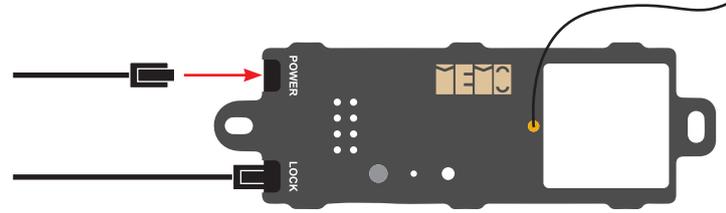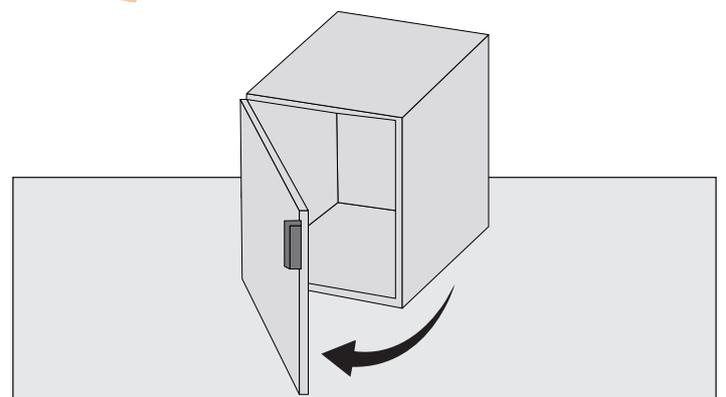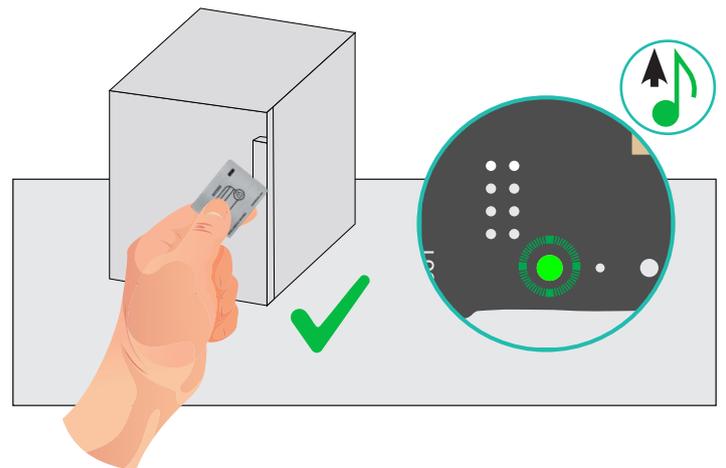
CHECK KEY READING

Present a programmed ACCESS KEY at the batch point. Approach a key to the batch point at the show case slowly.

Listen for a beep sound and watch the "Reader" LED at controller or external Reader.

As soon as a beep sounds and LED turns to ON, the key is recognized, and reader is working.

In case a dull beep sounds, that indicated that the key is NOT teached at that device.

In case NO beep sounds, that indicates that the Key is not in the field of the controller/ reader – check panel thickness and material and present key to the reader from inside, to rule out panel issues.

CHECK KEY READING RANGE

- Approach Access Key from approx. 10cm (4 inches) and move closer to batch-point slowly.

- Listen to the beep sound and stop movement when sound is triggered.

- Stay frozen in this distance and measure from key to panel surface – ireading shall be approx. 2,5cm = 1 inch.

- Repeat test with Access Card – usually key fobs have smaller range than cards, but some environment gives shorter reading range with Cards.

Test with Key-Fob   Test with Key-Card
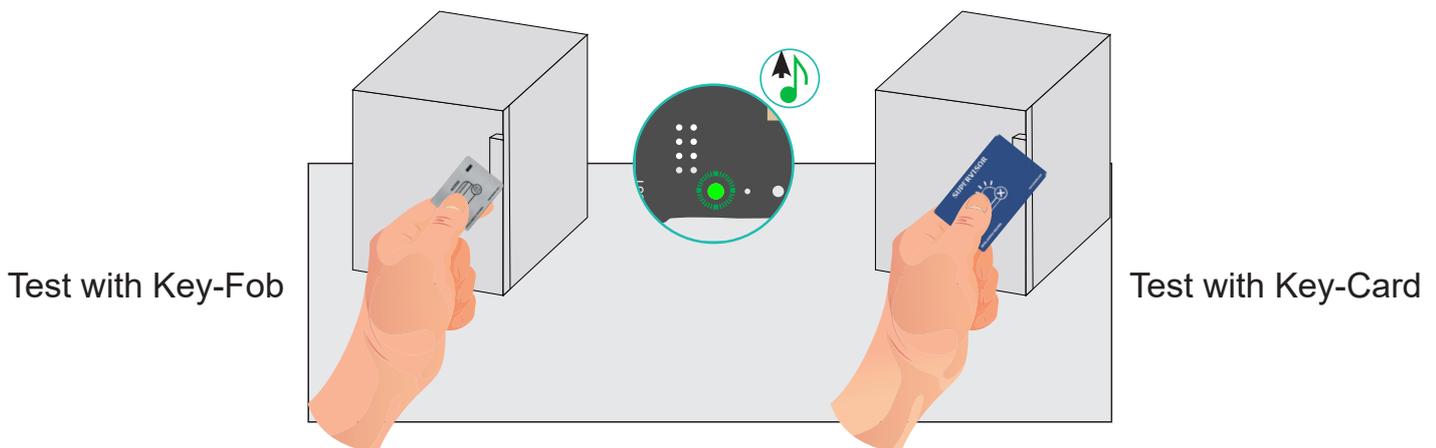
MARK BATCH POINT

- When using Reader Model VII the LED signals the Batch-Point.

- When using controller AIR2ONE, the Reader-LED on the controller indicates the Batch-Point and a small drill hole through the panel allows to view the LED signal.

- When no drill hole is showing the Batch-Point, we recommend to mark the center of reader, exactly corresponding to the LED, at the outside of the panel to give a better orientation for the sales staff.
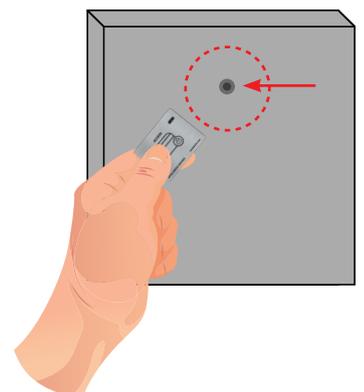
COMMON READER ISSUES

Check correct Presentation of Keys

Presenting the Key in a slow and controlled move is essential to give the system time for communication – fast and hectic moves do not allow communication between keys and reader.

Present the keycard to the reader.
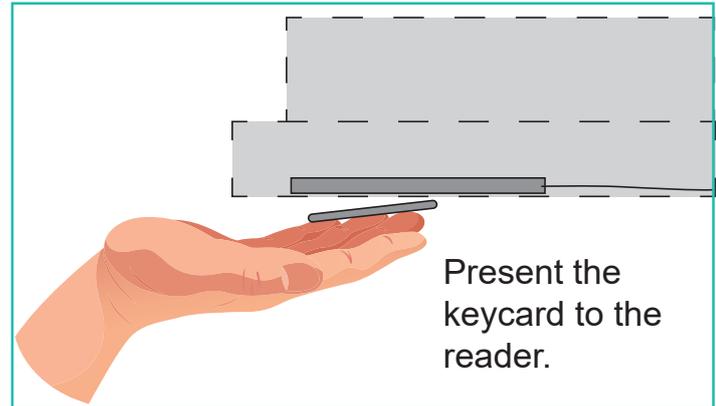
## Reading Range too Small – Check Reader Orientation

Make sure the reader is fixed with the "Backside"-Label oriented to the inside of the show case – wrong orientation is reducing reading range by. 5mm (0,2 inch).

Back Side

Back Side
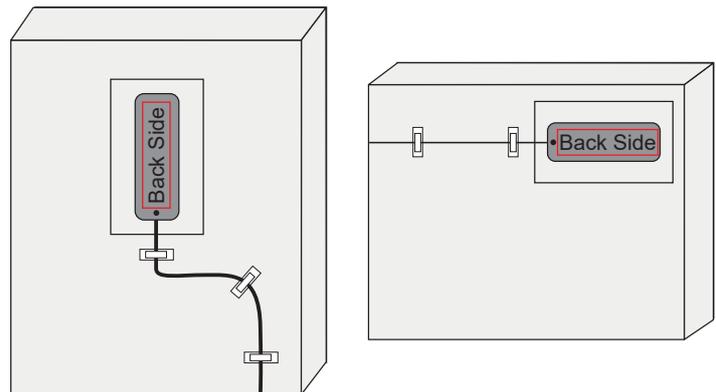
NO KEY READING – Check Cable & Connector

Reader Connector on controller might have become loose or cable has been damaged during installation – try and alternative reader and test again.
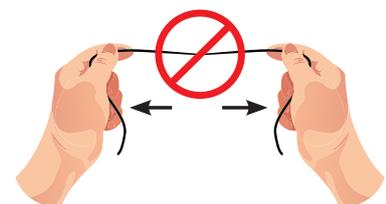
Do not use tools to cut or modify the cable.
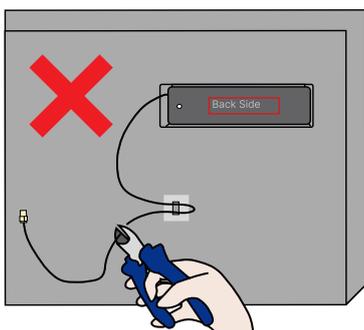
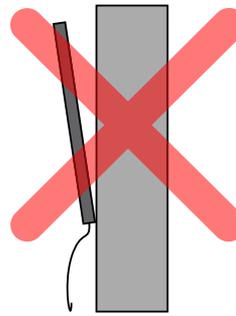Bending or twisting the cable can damage its internal structure.

Avoid pulling or putting tension on the cable during use.

Back Side

PRECAUTION !

Check Reader Fixation

Make sure the reader is installed flat and neat to the panel. Angled or loose fixation is reducing reading range, in worst case Keys are not detected at all.

Make sure that the reader is positioned correctly.

Check for Other Cables in Parallel

High Power Cables and High Frequency cables in the same conduit or in the same cable channel may cause disturbances and weaken or even block the reader signal, in worst case Keys are not detected at all.
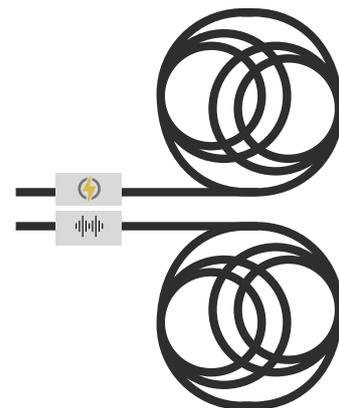
Avoid routing high power or high frequency cables alongside the reader cable — this may cause interference and reading failures.

INTERNATIONAL USE - CERTIFICATIONS

Safety Certifications
All MEMO Components are certified and tested to fulfil technical Standards

• POWER SUPPLIES are certified for SAFETY
• CABLES & HOUSINGS are certified for FIRE RETARDENCY
• CONTROLLERS are certified for RADIATION and DISTURBANCES

MEMO Security Approvals allow installation into furniture without running cables in metal conduits and metal shielding boxes check with local authorities for your individual requirements.
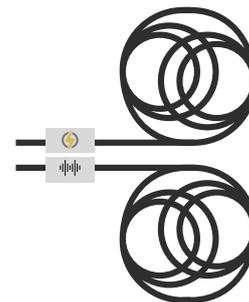
CONTROLLERS

EUROPE: MEMO Controllers are CE certified to be compliant with EU regulations.
USA: MEMO Controllers are built to comply with UL regulations, using only approved materials to be fire retardant and safe.
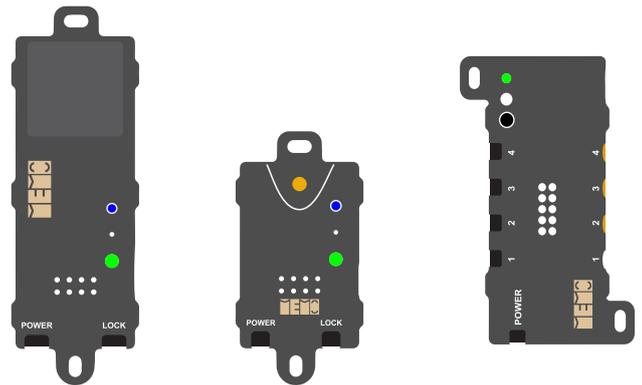
CABLES

All MEMO component cables are UL approved and may be used in US furniture applications without metal conduits.

POWER SUPPLIES

MEMO Power Supplies fulfil the highest quality standards and of course are UL rated. Beside that they are also tested according to TÜV/GS, EN/EC, CE, CB, UL, FCC, CSA, CCC, PSE, MSIP, BSMI, SIRIM, BIS, EAC, AS/NZS, ROHS.