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Bus Controller Architecture

Each Diagram showing 1 Cabinet with 2 Doors

Example where authentication is done at each cabinet door

**Key**
- CABINET
- NODE TO CABINET DOOR
- CABLE
- CAT 5e CABLE

**Bus Controller and Remote Node**
Installation Manual

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Bus ServerRack Access Control Architecture

Each Diagram showing 1 Cabinet with 2 ELock Doors

Authentication is done at the end of a row of cabinets with an Enline, Remote Node, ELock Handle, and a Bus Controller
Mounting the Bus Controller

Mount the Bus Controller

- The Control Unit can be attached using the magnetic strips for steel cabinets or VNH strips for aluminum cabinets.

- Alternatively, the Control Unit can be placed on a cabinet shelf inside any cabinet.

It is preferable to mount the Control Unit near the top of the rack, to ease the running of cables, however this is not essential.
The Bus Controller Explained

The Bus Controller is a closed loop system with Primary and Secondary Bus Ports. This provides redundancy in the event the bus cable is broken.

- A normal Bus configuration operates as shown below.

**Normal Operation**

The Bus starts at the “Primary Bus” port on the Bus Controller and goes to the first Remote Node’s “Bus In” port. It then comes out of the first Node's “Bus Out” port and into the second Remote Node’s “Bus In” port. The chain continues like this through all the Remote Nodes, ending back at the “Secondary Bus” port on the Bus Controller.

- In the event of a broken cable, the Bus Controller will automatically re-route communication and power to all Remote Nodes beyond the break via the Secondary Bus.

**With Break in Bus Cable**
Suggested Wiring Configuration

In order to prevent any individual cable length from being too long, please follow the suggested wiring configuration:

The diagrams below show a top down view of a row of server cabinets.

Not Recommended - return cable is very long

Better Configuration - first and last cable still long, but better than option

Best Configuration - all cables are short and an equal distance from each node
Installing the Remote Nodes

One Remote Node needs to be installed for every two doors (typically the front and back door of a standard cabinet). However, if only a single door is in operation per cabinet, one Remote Node is only needed for every two cabinets.

The Remote Node is very small and compact in size, measuring just 4” x 2” x 1” (10.2 cm x 5.1 cm x 2.6 cm). The Remote Node can be installed anywhere on the cabinet and can be attached to the cabinet using the VHB tape strip on the back of the node.

The CAT 5e cable attaches to the Remote Node using the ‘Bus In’ and ‘Bus Out’ ports as shown below.

![Diagram of Remote Node installation](image)

Recommended Installation of Remote Nodes
Installing the Door Contacts
This will connect to Remote Node

- For each device (Dev 1 (typically door 1) / Dev 2 (typically door 2)) on a Remote Node, a set of Door Contacts can be installed. The Door Contacts will allow the position of the door (open/closed) to be monitored.

- **USE THE SUPPLIED DOOR CONTACTS ONLY**

  **DO NOT USE ORDINARY REED SWITCHES AS THESE WILL CAUSE THE DEVICE TO GO INTO AN ALARM CONDITION.**
Installing the Tamper Inputs - Connects to Remote Node

- For each device (Dev 1 (typically door 1) / Dev 2 (typically door 2)) on a Remote Node, a set of Tamper Switches can be installed. The Tamper Switches can be used on side/top panels of a cabinet. If the tamper switch opens, it will create an immediate alarm.
- Use the supplied Tamper Switches only.

DO NOT USE THE ORDINARY REED SWITCHES AS THESE WILL CAUSE THE DEVICE TO GO INTO AN ALARM CONDITION.
Attaching Device to the Remote Node

Devices are connected to the Remote Node using the sockets circled in the diagram below.

Each Remote Node has two device inputs. Dev 1 (typically door 1) and Dev 2 (typically door 2).
Connecting the Bus Controller to a Network

Connect a CAT 5e cable from your network, to the port shown below.
Connecting the Power Supply to the Bus Controller

Attach the power supply to the Bus Controller before plugging the power supply into a power source.

When powering the Bus Controller down, unplug the power cord from either the power source or the power supply. Do not disconnect the power supply from the Bus Controller.