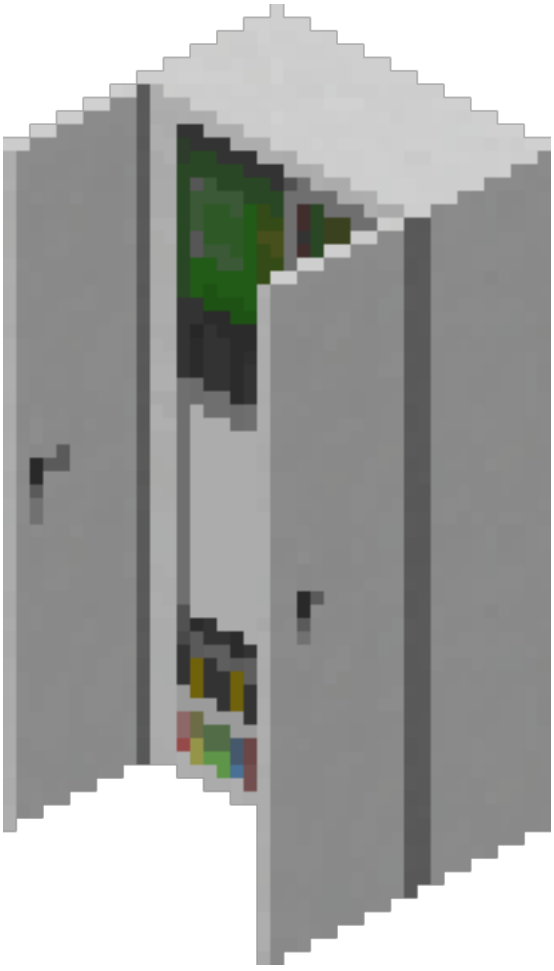
MTronic XT

MTronic XT Traction Elevator Controller

Installation and Maintenance Manual



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Introduction

Thank you for selecting the MTronic XT traction elevator controller system! This is the most advanced elevator controller available in Minetest today.

This manual will help you understand, install, and configure your new elevator system. After installation, keep this manual with the controller in the event that it is needed for future reference, such as troubleshooting or configuration changes.

If you are an experienced user, following the installation checklist on the next page may be the fastest way to complete the installation. If you are not, or if you need assistance with any of the steps mentioned, continue reading and each step will be explained in detail.

Installation Checklist

☐ Place controller and drive

☐ Place car level with bottom floor

☐ Place machine above car, above highest floor

☐ Place doors

☐ Pair machine with controller

☐ (Group operation) Place dispatcher

☐ Select group mode at controller

☐ Enter floor table at controller (simplex) or dispatcher (group)

☐ (Group operation) Connect dispatcher to controllers and set floors served

☐ Test floor stops

☐ Place PIs and lanterns and pair to controller

☐ Place call buttons and pair to controller (simplex) or dispatcher (group)

☐ (Group operation) Place swing call buttons and pair to controller (optional)

☐ Place fire recall keyswitch and pair to controller (simplex) or dispatcher (group)

About the Controller

The MTronic XT controller is a traction elevator controller with the following features:

- 2 to 100 landings
- Total rise from 3 to 490 meters
- Speed from 0.2 to 20 meters/second
- Selective-collective operation
- Simplex or group (when connected to dispatcher) configurations
- Fire service
- Independent service
- Machine room and car-top inspection operation
- Swing operation
- Graphical configuration menus
- Easy setup wizard
- Touchscreen status display

As shipped, the controller is fully preassembled and prewired. The only actions needed before normal operation can begin are the connection of external devices and entry of parameters.

About the Dispatcher

The MTronic XT dispatcher connects to two or more MTronic XT controllers to enable group operation. It supports the following features:

- Group size from 2 to 16 cars
- True ETA-based dispatching algorithm
- Group recall for fire service
- Automatic reassignment of calls from busy/out of service cars
- Homogeneous or heterogeneous groups (not all cars have to serve all floors)
- Automatic configuration of controller floor tables from dispatcher settings
- Unlimited number of hall call risers
- Swing hall call risers for no, some, or all cars

Like the controller, the dispatcher is also shipped preassembled and prewired. The only actions needed are to enter the necessary parameters, connect the controllers for each car in the group, and connect any external devices needed.

Installation

Placing the controller and drive

The controller should be placed on the machine room floor in a location that provides access to its front for installation and service.

Please observe the following when selecting a location:

- Allow adequate space above and next to the controller. The cabinet is 2m tall and 1m wide, and the drive will occupy space to the right of the cabinet near the top.
- Allow space in front of the controller for access during installation and service. While the controller doors do not protrude past 1m even when open, placing objects in front of the controller may make service difficult. Leaving an empty, accessible space of at least 2m (measured with doors closed) in front of the controller is recommended.
- The machine room door should be of a type that locks. The controller cabinet is lockable (following area protection), however if it is accidentally left open, then anyone gaining access to the machine room will be able to modify parameters or change operating modes.

Place the controller and drive as shown here:

Placing the car in the hoistway

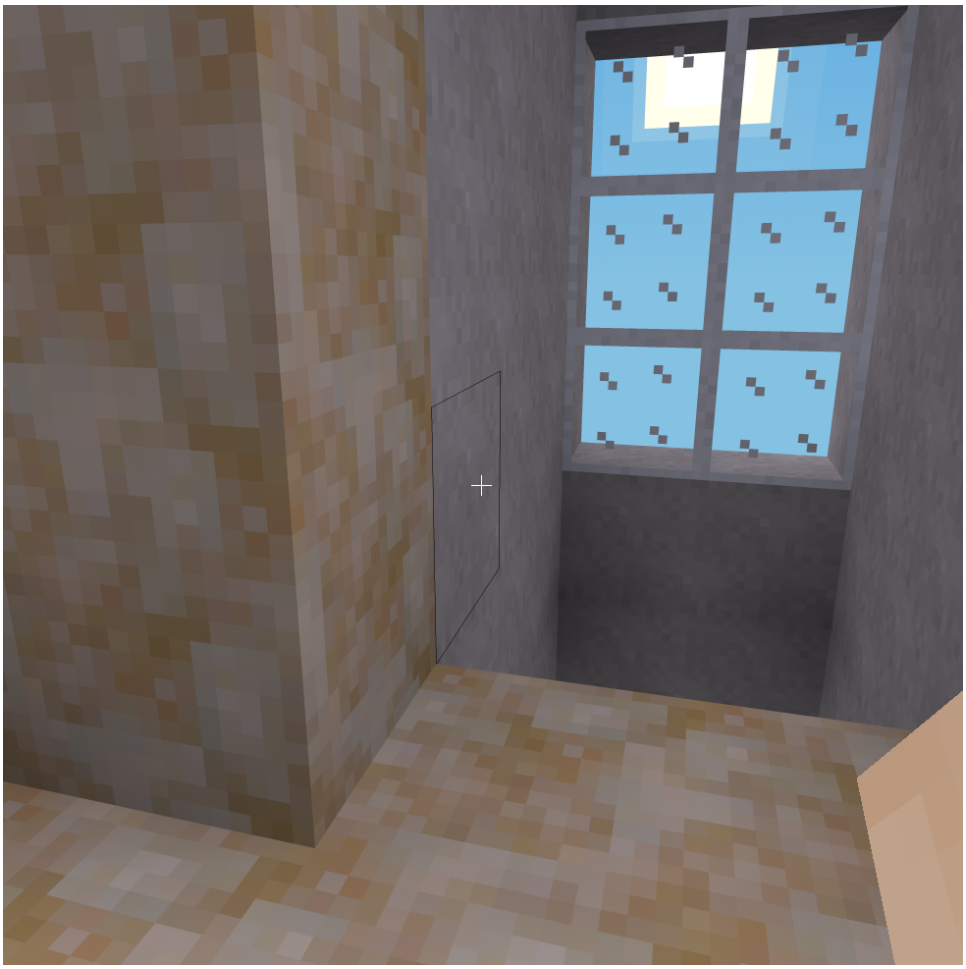
In order to be suitable for use, the hoistway must be 2m wide (side to side) and 3m deep (front to back). Any material may be used for its construction. The total height may be any desired value, however it must not be more than approximately 490m tall in total.

Doorways should be located on a narrow (2m wide) side of the hoistway. Each doorway should be 2m wide and 3m tall. They may be at any desired vertical spacing from each other, so long as they do not overlap.

At the bottom of the hoistway, leave at least 1m of extra height below the floor level of the lowest landing in order to accommodate the car floor and toe guard.

At the top, leave at least 2m of extra height (3m recommended) in order to have adequate headroom when operating the car on car top inspection mode.

Place the car in the hoistway at the lowest landing. When placing the car, face into the hoistway and point at the left wall, just inside the door, at the level of the lowest portion of the door, as shown:



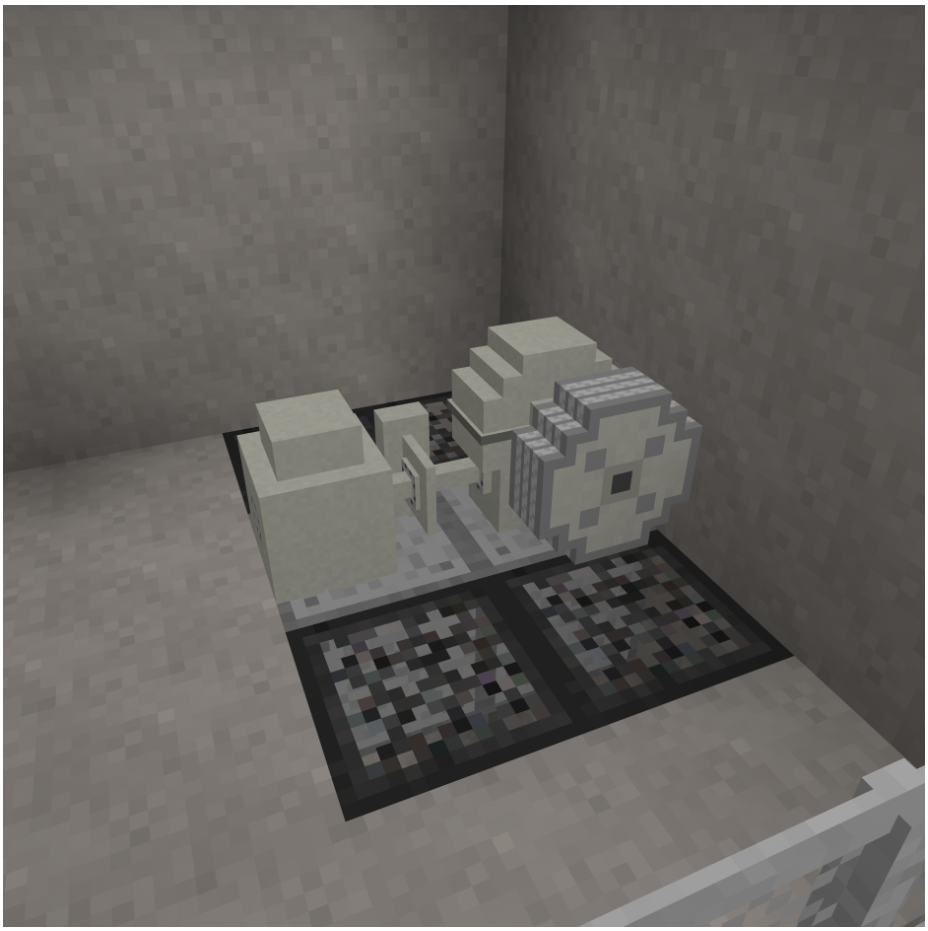
If you need to remove the car, hold the sneak key (by default, the shift key) and punch (left-click by default) the panel of key switches in the bottom left.

Placing the machine

Place the machine directly above the top of the hoistway. The placement location must be directly above some part of the car, with a gap of no more than 500 meters.

When the machine is placed, the motor and brake will be automatically placed to the left of the machine, and the traction sheave will face towards you.

Recommended placement of the hoist machine (steel and grating is directly above the car):



After placement, open the form on the machine (right-click by default) and enter the ID number of the controller it will be used with. The ID number can be obtained by pointing at the controller.

Next, verify that the text shown when pointing at the machine indicates the coordinates of the car. If it states that no car was found, make the necessary adjustments and punch (left-click by default) the machine to try again.

Placing the doors

Place a set of doors at each floor that will be served, including the floor the car was placed at. The car is equipped with a door restrictor, so if the car attempts to stop at a floor that is missing doors, the car doors will remain closed and the controller will report a fault and shut down.

Car doors are provided with the car and do not need to be placed manually.

To place the doors, point at the left side of the floor in the doorway, as shown:

If you later need to remove a set of doors, dig the lower left corner as viewed from outside.

Placing the dispatcher (group operation only)

A dispatcher is only needed for group (more than one car) operation. Skip this step if you will be using simplex (single car) operation.

The dispatcher should be placed on the machine room floor in a location that provides access to its front for installation and service.

Please observe the following when selecting a location:

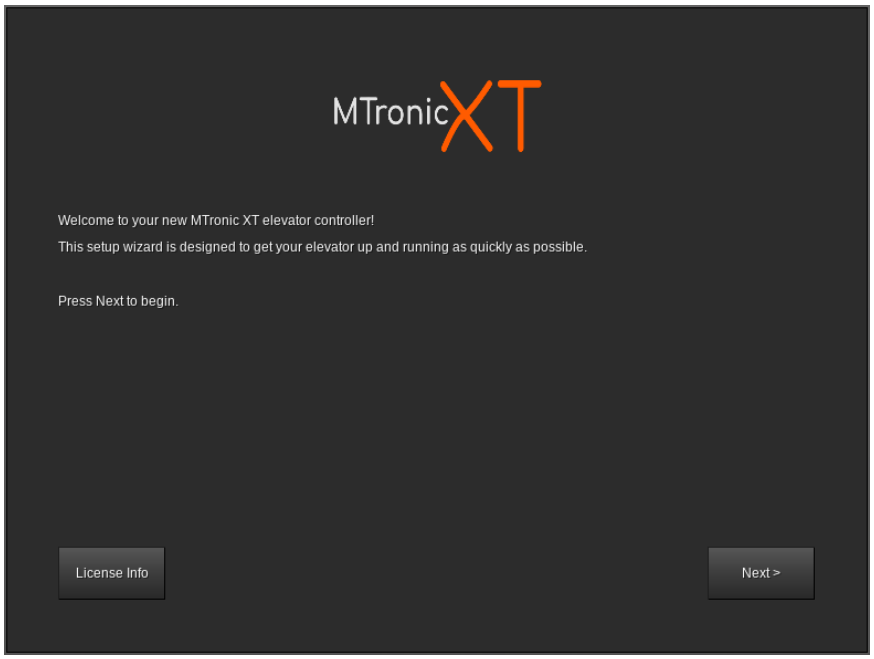
- Allow adequate space above and next to the dispatcher. The cabinet is 2m tall and 1m wide.
- Allow space in front of the dispatcher for access during installation and service. While the dispatcher doors do not protrude past 1m even when open, placing objects in front of the dispatcher may make service difficult. Leaving an empty, accessible space of at least 2m (measured with doors closed) in front of the dispatcher is recommended.
- The machine room door should be of a type that locks. The dispatcher cabinet is lockable (following area protection), however if it is accidentally left open, then anyone gaining access to the machine room will be able to modify parameters.

Place the dispatcher as shown:

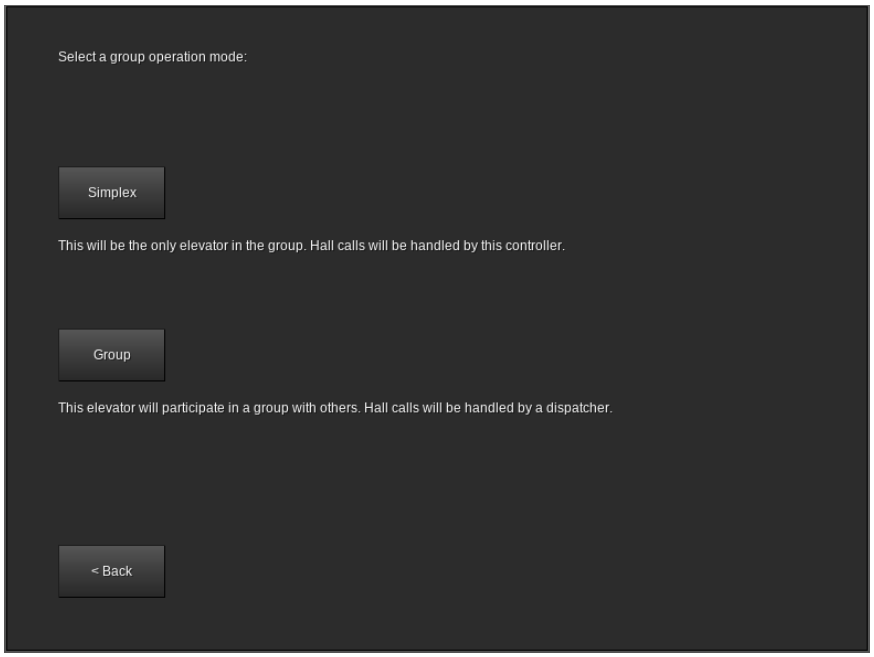
Selecting simplex or group operating mode

Punch (left-click by default) the controller cabinet to open the door, then open (right-click by default) the controller display.

The following screen should appear:



Click **Next**. The screen should change to the following:

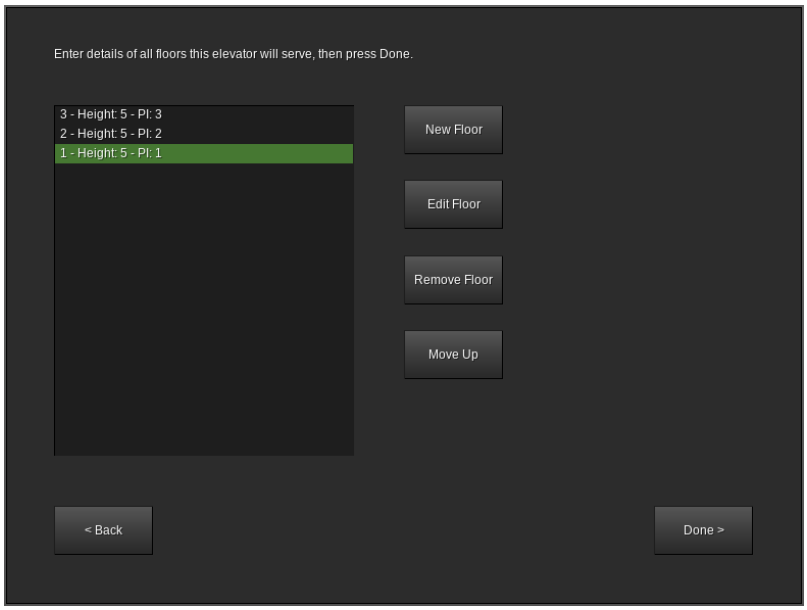


If this car will be operating in a simplex configuration (meaning this is the only car), click **Simplex**. If this car will operate in a group (multiple cars), click **Group**.

Configuring the controller floor table (simplex operation only)

Cars using group operation have the floor table sent by the dispatcher. This section is only applicable to simplex cars.

After clicking **Simplex** at the group mode selection screen, the floor table editor will appear:



The list at the left shows each floor the elevator will serve. By default, three floors are present, each 5 meters tall, numbered from 1 to 3.

The number on the far left of each line (to the left of **Height**) is the landing number. This always starts at 1 for the lowest landing and increases by 1 with each landing upwards.

Height indicates the distance from floor level at this floor to floor level at the next floor (not applicable at the top floor). For example, if standing on floor 1 shows your height as +10.5 and standing on floor 2 shows your height as +15.5, then the height of floor 1 is 5. For the topmost floor, the height value is unimportant and any number can be entered.

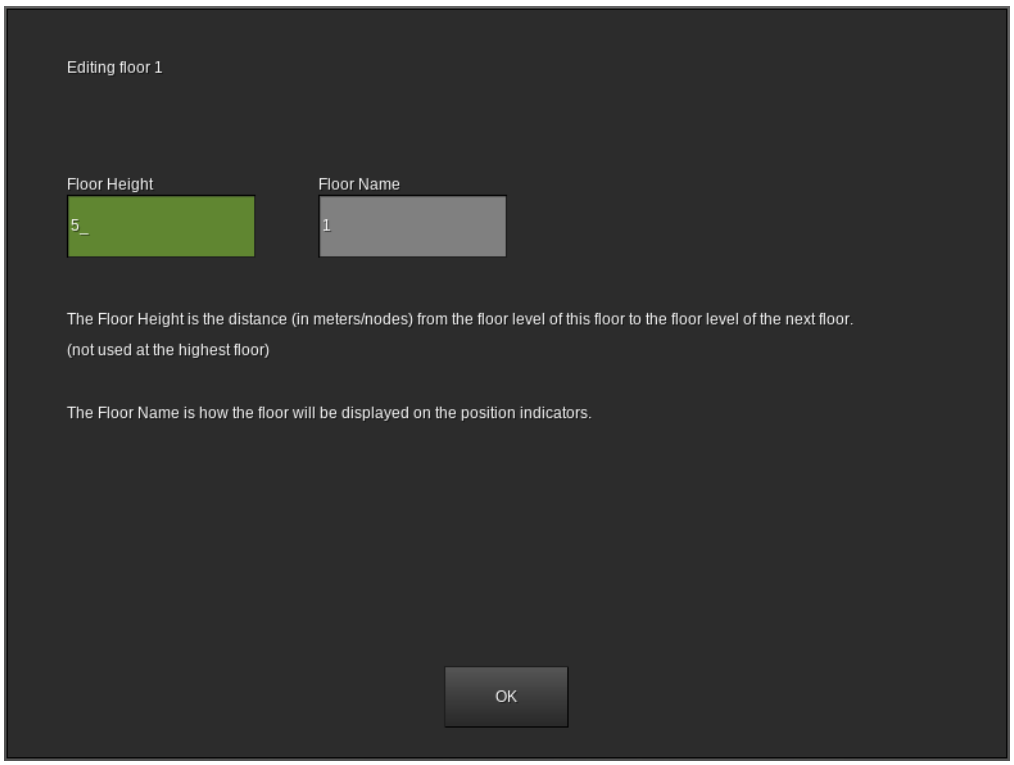
PI is the text that will be used when displaying this floor, as well as the text that will be on the button for this floor. For example, if landing 1 has **PI** set to **L**, then when the car is at landing 1, the position indicator(s) will show **L**. This value can be one to three characters long and can contain any printable ASCII characters, including uppercase and lowercase letters, numbers, symbols, and spaces. For best results, use numbers and uppercase letters.

New Floor adds an extra floor to the top of the list. You can create up to 100 floors.

Remove Floor removes the highlighted floor from the list and renumbers the remaining floors appropriately. You can only remove a floor if you have at least three floors.

Move Up and **Move Down** move the highlighted floor up or down in the list. These buttons only appear if the highlighted floor is not already at the respective end of the list.

Edit Floor opens the floor editor:



Floor Height sets the height of this floor (see **Height** on the previous page).

Floor Name sets the name of this floor (see **PI** on the previous page).

When the values are correct, click **OK** to return to the previous floor table editor screen.

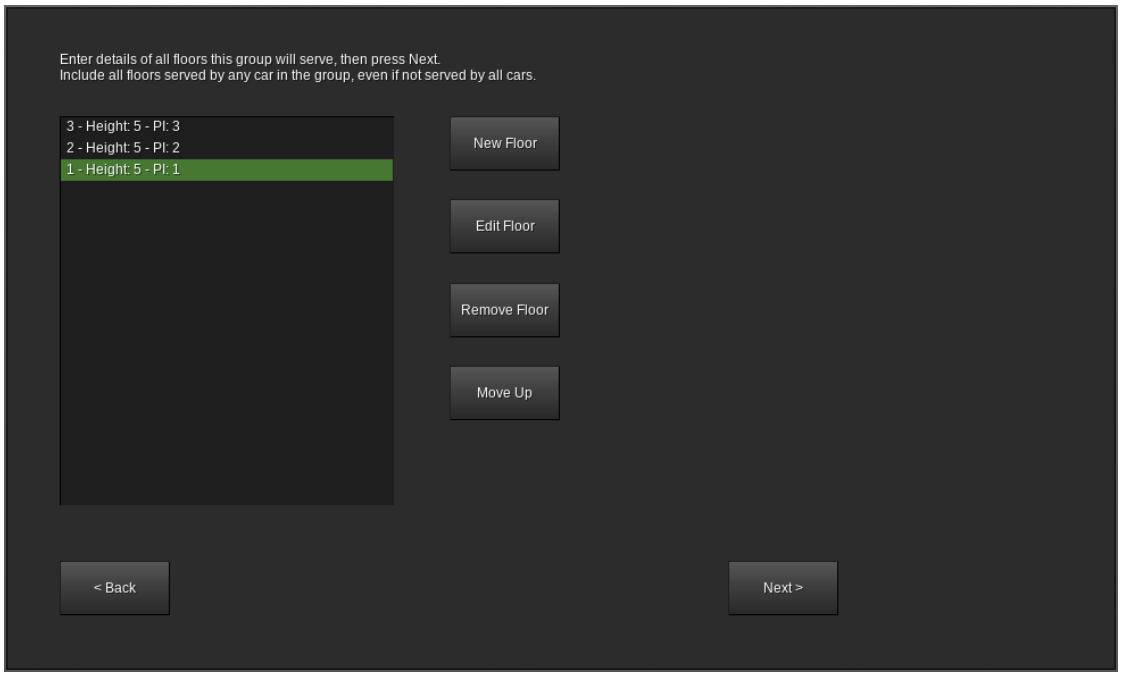
When the floor table is complete and accurate, click **Done** to save your changes.

Configuring the dispatcher floor table (group operation only)

Cars using group operation have the floor table created at the controller. This section is only applicable to cars using group operation.

Punch (left-click by default) the dispatcher to open the door, then open (right-click by default) the form. The following screen should appear:

Click **Next**. The floor table editor will appear:



The list at the left shows each floor the elevator will serve. By default, three floors are present, each 5 meters tall, numbered from 1 to 3.

The number on the far left of each line (to the left of **Height**) is the landing number. This always starts at 1 for the lowest landing and increases by 1 with each landing upwards.

Height indicates the distance from floor level at this floor to floor level at the next floor (not applicable at the top floor). For example, if standing on floor 1 shows your height as +10.5 and standing on floor 2 shows your height as +15.5, then the height of floor 1 is 5. For the topmost floor, the height value is unimportant and any number can be entered.

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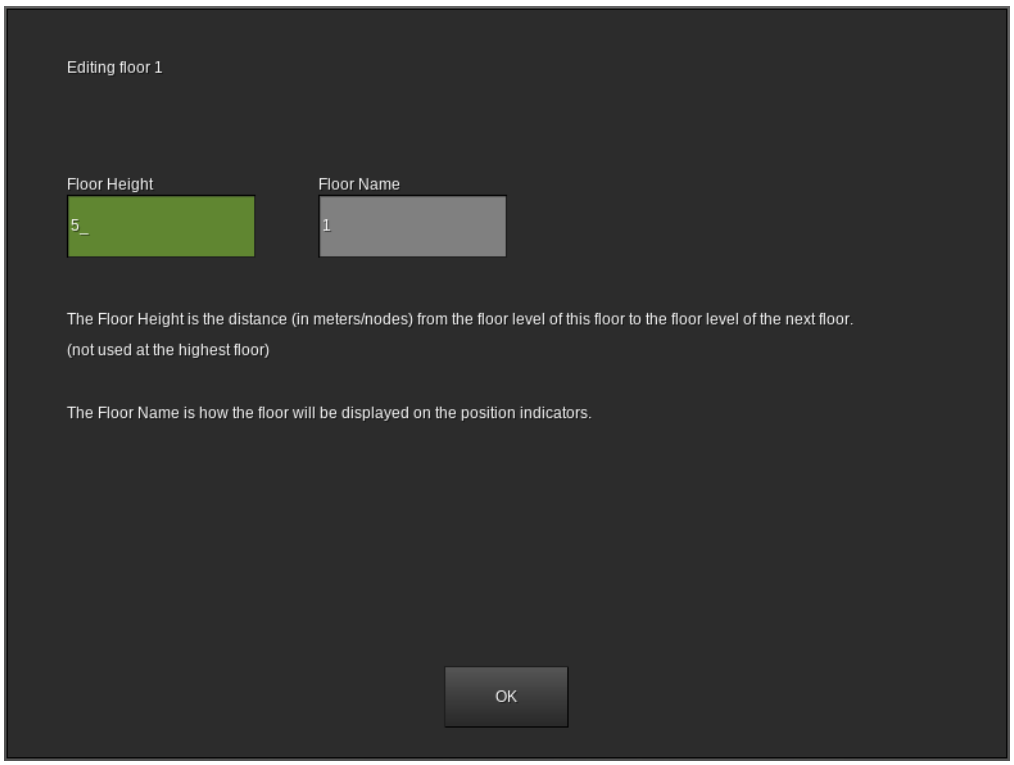
New Floor adds an extra floor to the top of the list. You can create up to 100 floors.

Remove Floor removes the highlighted floor from the list and renumbers the remaining floors appropriately. You can only remove a floor if you have at least three floors.

Move Up and **Move Down** move the highlighted floor up or down in the list. These buttons only appear if the highlighted floor is not already at the respective end of the list.

Edit Floor opens the floor editor (see next page).



Floor Height sets the height of this floor (see **Height** on the previous page).

Floor Name sets the name of this floor (see **PI** on the previous page).

When the values are correct, click **OK** to return to the previous floor table editor screen.

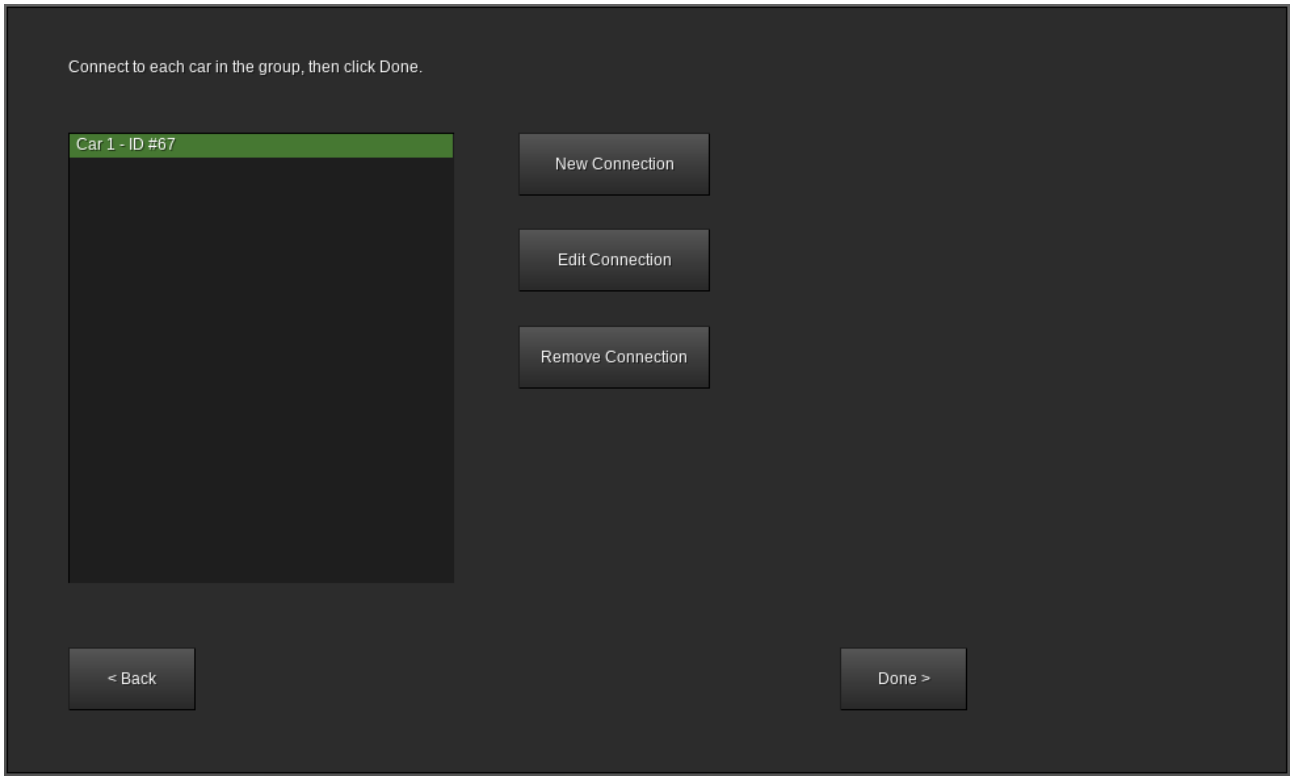
Note that all floors served by any car in the group must be entered, even if not all cars in the group will serve all floors. You will have an opportunity in the next step to choose which floors are served by each car.

When the floor table is complete and accurate, click **Next** to save your changes.

Connecting to the controllers (group operation only)

Simplex cars do not have a dispatcher. This section is applicable to cars using group operation only.

After the floor table has been saved, the following screen should appear:



This screen lists all of the current connections from this dispatcher to the controllers of the cars in its group.

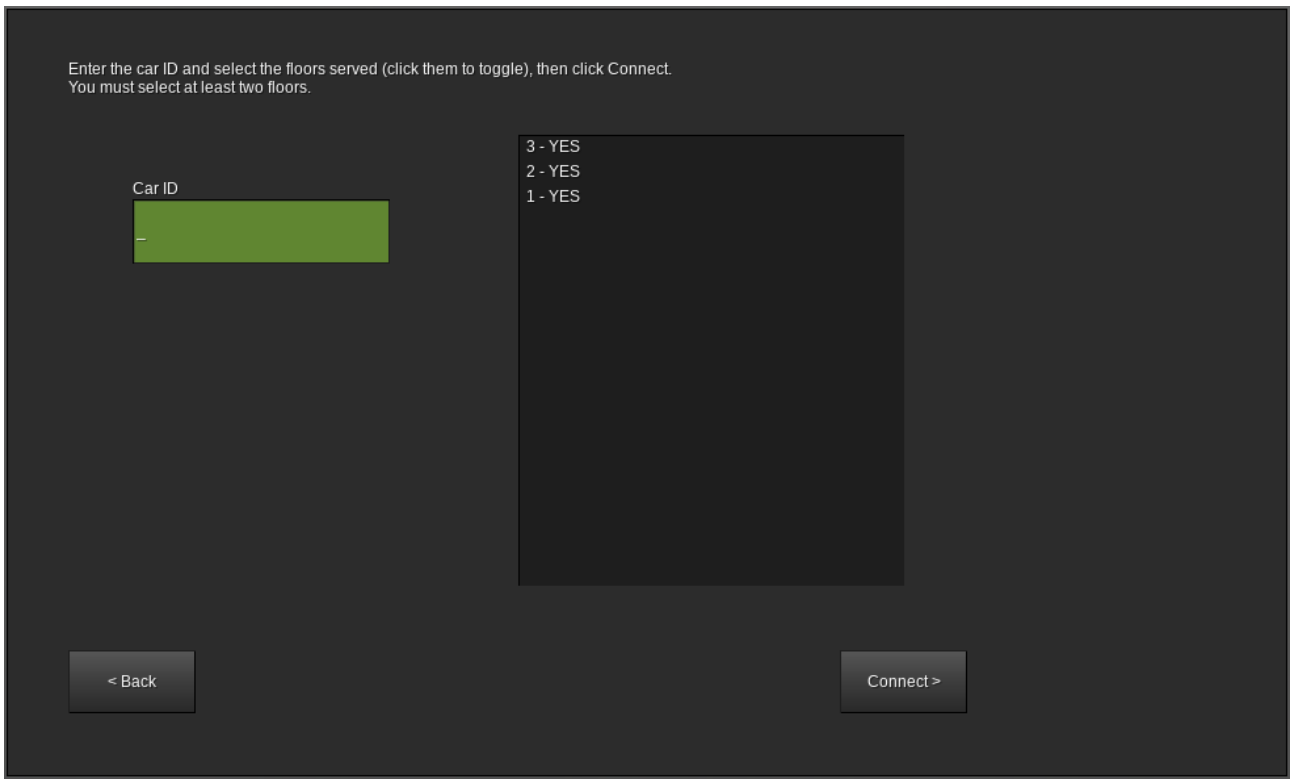
ID is the ID number of the controller. This can be obtained by pointing at the controller.

Remove Connection removes the highlighted car from the group.

New Connection adds a new car to the group.

Edit Connection is used to change the floors served by the highlighted car.

Clicking **New Connection** or **Edit Connection** opens the following screen:



Car ID is the ID number of the controller to be added to the group. This can be obtained by pointing at the controller, or if the controller is ready to pair then the ID number will also be shown on the controller display.

The list on the right side controls which floors will be served by this car. This should show **YES** for floors that exist on this car and **NO** for floors which do not. Click a floor in the list to toggle it to **YES** or **NO**. At least two floors must be set to **YES**.

When the floor list is correct and the car ID has been entered, click **Connect**. If the connection was successful, the previous screen should reappear.

If the connection fails, check the following:

- Is the car ID correct? The controller should show its ID number on its display.
- Is the controller already in a group? Controllers can only be connected to if they have not already been connected.
- Is the controller ready to connect? The group mode should be set to **Group** and the controller display should show **Waiting for connection from dispatcher...**

When all controllers in the group are connected, click **Done**.

Testing the floor stops

Before continuing, set the **TEST** switch on the controller (located under the display) to the on position. This will disable all hall calls and prevent the doors from opening.

One at a time, click each floor in the **CAR** column. This will place a car call (indicated by an asterisk) on that floor. After placing each call, observe the car and verify that it stops properly at the floor, then continue on to the next floor. Due to test mode being enabled, the doors will not open when the car stops.

If the car serves more than ten floors, up and down arrow buttons will become available in the top right corner of the controller display. Use these to scroll the view up and down in order to place car calls above the 10th floor.

When satisfied with the performance, set the **TEST** mode switch to the off position. The green **NORMAL OPERATION** LED should light. The doors will now open in response to calls. If desired, the test may be repeated in this mode in order to verify proper door operation.

Pairing the PIs and lanterns to the controller

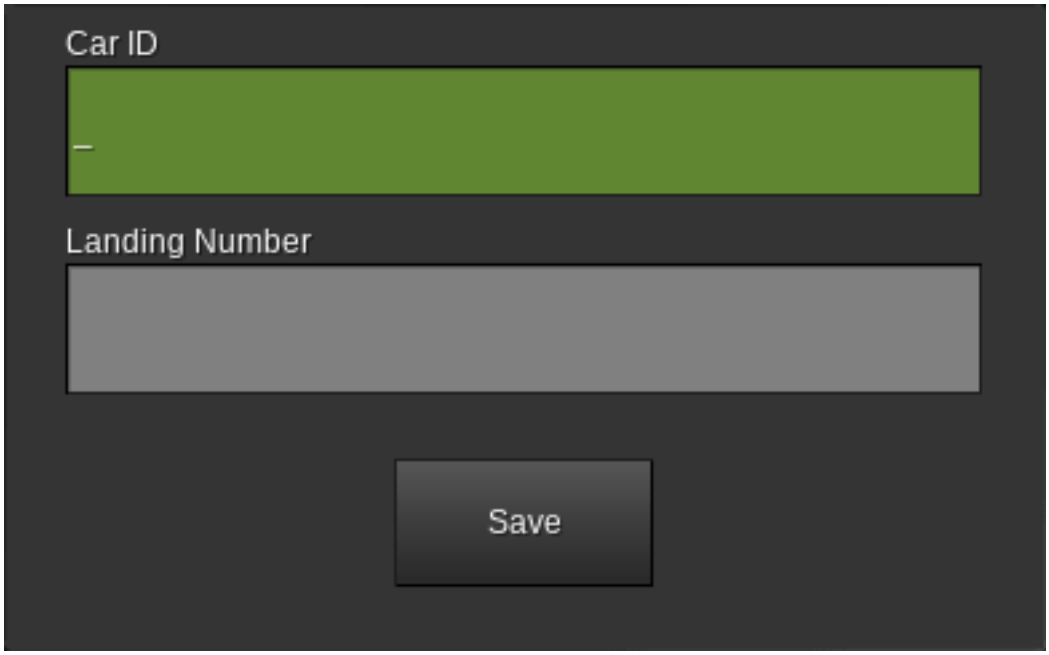
PIs (position indicators), lanterns, and PI/lantern combinations may be placed in any desired location.

A typical configuration is:

- Down lantern near the doorway on the topmost floor
- Up/down combination lanterns near the doorway on all intermediate floors
- Up lantern near the doorway on the bottommost floor
- PI/lantern combination in place of the lantern on the lobby floor
- PI in the building security office, if one exists

Any number of these items can be used per car.

After placing each item, open its form (right-click by default):



Car ID is the ID number of the controller that this device will be connected to. This can be obtained by pointing at the controller.

Landing Number is the number of the landing that this device is installed on. This comes from the leftmost number in the floor table, not the name of the floor. For example, the lowest floor is always “1”, the next lowest floor is always “2”, etc.

For cars using group operation, skip counting any floors this car does not serve. For example, if the group spans floors LL, G, and M, but this car only serves LL and M (and does not serve G), then if this device is on floor M, the landing number would be 2.

Not all device types will request a landing number.

When the values are correct, click **Save**.

Pairing the call buttons

Call buttons may be placed in any desired location. Typically, the topmost floor will have a down button, the bottommost floor will have an up button, and intermediate floors will have both up and down buttons.

For simplex cars:

Placement and pairing is identical to lanterns. See the previous page.

For cars using group operation:

Placement and pairing is identical to lanterns (see the previous page), except as follows:

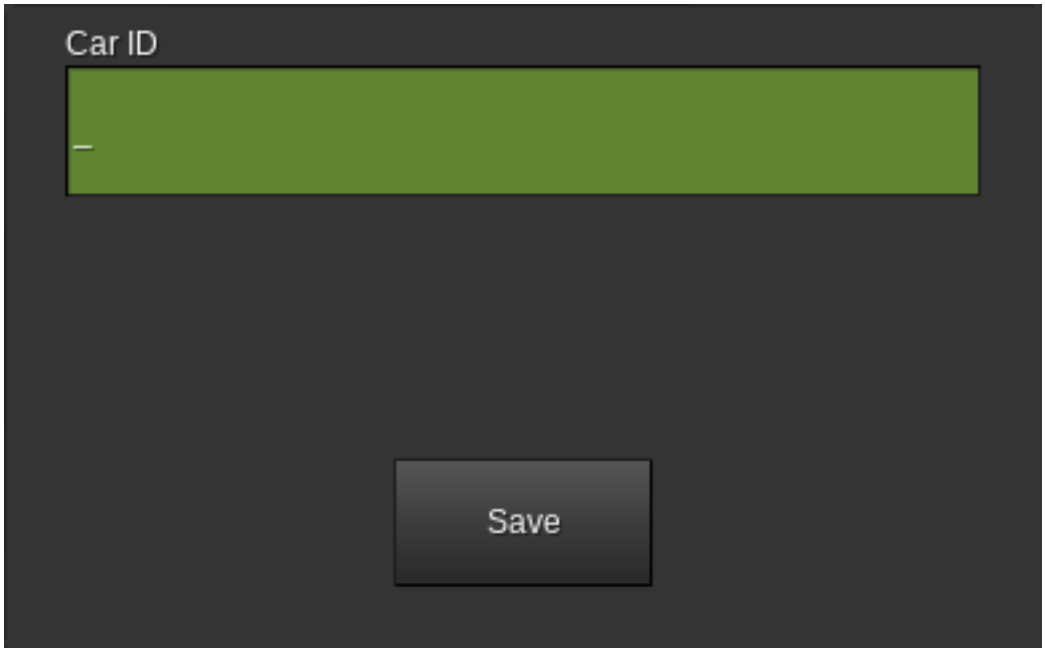
- For normal call buttons, enter the ID of the dispatcher in the **Car ID** field. This can be obtained by pointing at the dispatcher.
- For swing call buttons (call buttons that will always call a specific car), enter the ID number of the associated controller in the **Car ID** field. This can be obtained by pointing at the controller.

Pairing the fire recall keyswitch

The fire recall keyswitch can be placed in any desired location, however it is typically located on the lobby floor and near the elevator or group of elevators.

Use only one of these keyswitches per car (simplex) or group (group).

After placing the switch, open its form (right-click by default):



For simplex cars:

Enter the ID number of the controller. This can be obtained by pointing at the controller.

For cars using group operation:

Enter the ID number of the dispatcher. This can be obtained by pointing at the dispatcher.