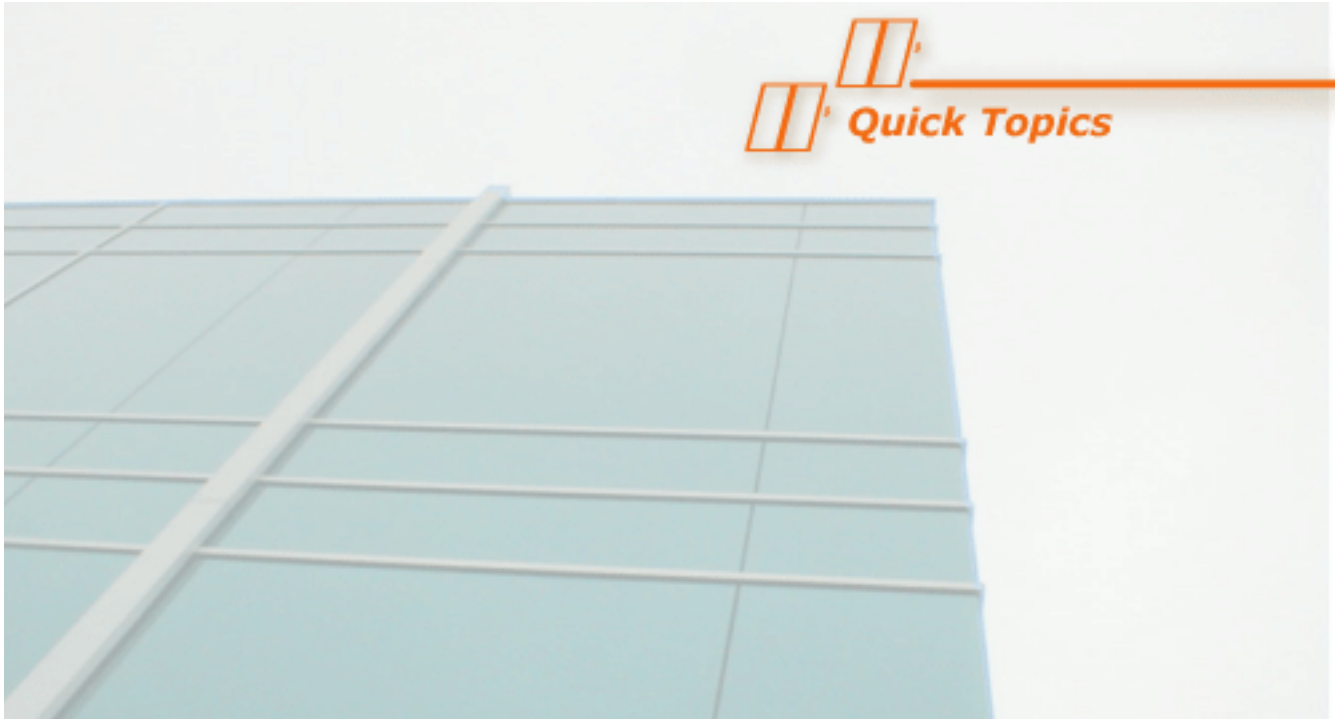


iLand Compact Installation

In This Instruction

This instruction provides information you will need to install the *iLand* Compact Landing System, including:

iLand Landing System

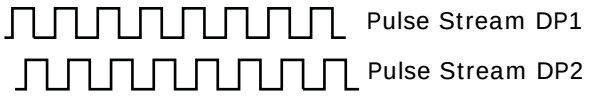
iLand Compact is a rugged, highly accurate landing system. iLand uses an encoder to gauge precise hoistway position and three separate Hall-effect sensors to level the elevator accurately at each landing. iLand is designed for easy installation and adjustment and to provide maintenance-free service.

Position Feedback

A simple, durable wheel assembly rides the elevator rail as the car moves. Wheel-to-rail tension is maintained by two springs. Mounted with the wheel is a magnet that rotates as the wheel turns. The rotation of the magnet is detected by an integrated circuit (encoder) which generates two pulse streams, phase-offset by 90 degrees. The encoder generates 348 pulses per foot of travel.

Direction

By monitoring both pulse streams, iControl can tell the direction of elevator travel by detecting which stream is the "first to arrive." For example, when the elevator is moving up, DP1 leads DP2. When the elevator is moving down, DP2 leads DP1.



Position

During hoistway "learn" operations, iControl counts the total number of pulses from the bottom to the top of hoistway travel and also stores the floor height position (pulse count) at each landing. During normal elevator operation, the iController uses the floor height information and the encoder pulse count to accurately track the elevator car position in the hoistway.

Landing Accuracy

During installation, running in Inspection mode, the elevator is manually leveled at each landing. With the car level at the landing, a six-inch strip magnet is placed near the hollow of the rail curvature, vertically aligned with a row of three sensors on the iLand landing system. If the car has both front and rear doors, a second strip magnet is placed on the opposite side of the rail and a second set of sensors is used. Placement of the magnets in vertical alignment with the sensors should be as accurate as possible.

During automatic operation, the iController uses signals from the three sensors (Up Level, Door Zone, and Down Level), factors in speed and position information, and comfortably and accurately "lands" the elevator car to within 1/32" of floor level.

Logic

If required, the Floor Offset Distance parameter may be adjusted to compensate for inexactly placed floor magnets (see *Calibrating the Floor Offsets* in Section 4 of the User Guide). Using this parameter, you can offset the car level-at-floor point by ± 0.5 inches.

The positions of the floor magnets are recorded during hoistway learn operations (see *Learning the Floor Heights* in Section 4 of the User Guide). Each time a magnet is encountered, the iController learns the position of the magnet with respect to the bottom floor. This learned height, the "floor height," is stored in system memory.

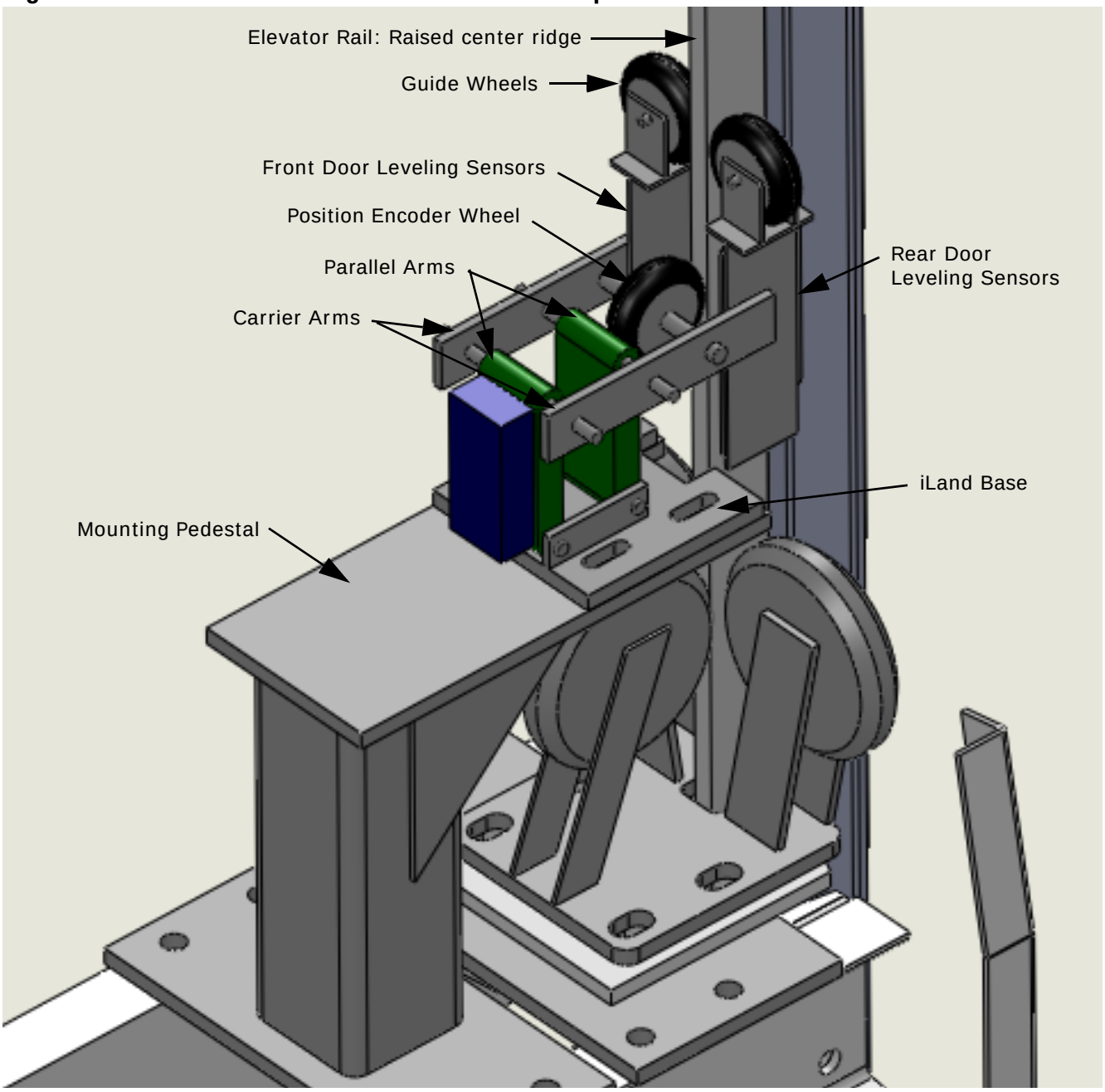
Cartop Mounting

The iLand Compact landing system is usually mounted on a pedestal on the elevator cartop such that the encoding wheel rides the center ridge of the hoistway rail. MCE offers a mounting pedestal kit, designed to work in most installations, which can be purchased separately (LS-PEDESTAL-BSE), or a pedestal may be provided by the installer. Typically, the mounting pedestal is bolted to the crosshead beams.

Positioning

Refer to the illustration below and to the accompanying instructions to ascertain how iLand must be positioned and mounted on the cartop.

Figure 1. iLand Pedestal and Position on Cartop



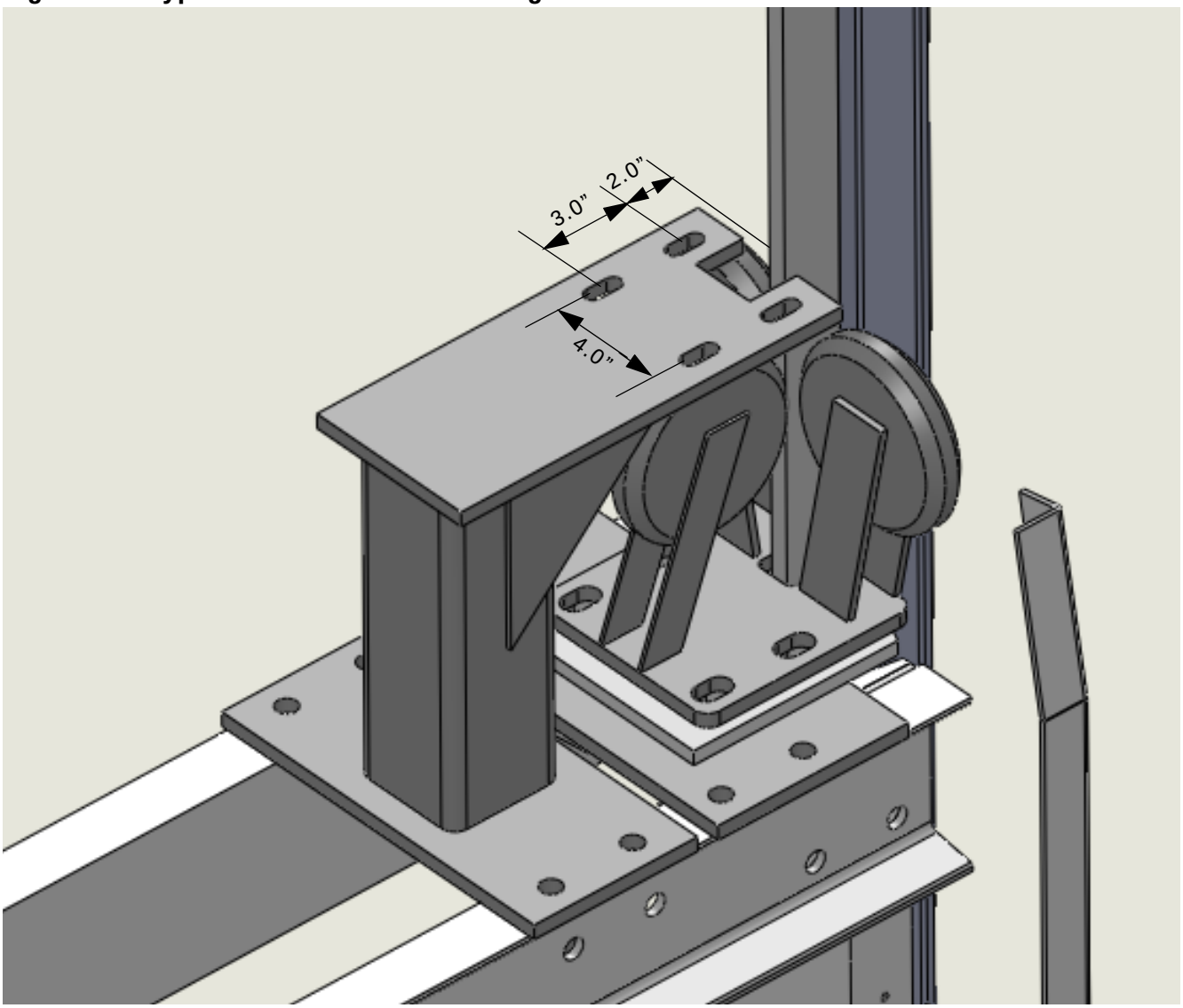
Pedestal Fabrication and Mounting

A pre-fabricated, universal mounting pedestal may be purchased from MCE. If built on site, the pedestal must be fabricated to:

- Mount securely to the elevator car crosshead beam
- Position the iLand Compact system acceptably both vertically and horizontally (vertically so that the landing system clears obstructions like the elevator guide wheels — horizontally so that the encoder wheel is centered on, and aligned with, the raised center ridge of the rail)
- Be sturdy enough to resist flexing or excessive vibration that could cause position information errors

If the pedestal bends or moves, the encoder information might become inaccurate or be interrupted causing the controller to receive inaccurate information about the cars position, speed, and direction of travel. Figure 2 below provides the mounting footprint for the iLand chassis on the pedestal. The slots should provide clearance for 1/2” bolts.

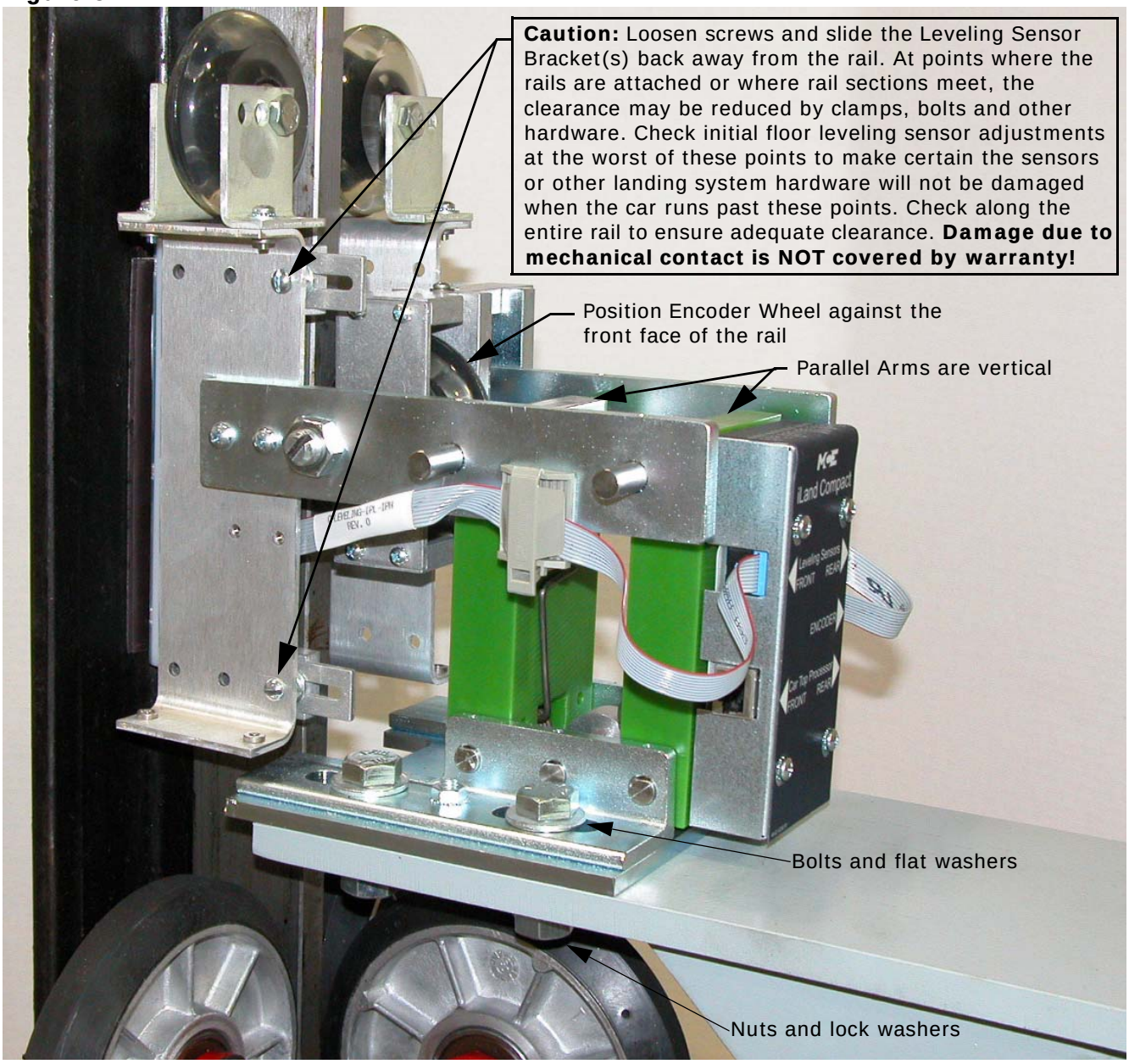
Figure 2. Typical Pedestal for mounting iLand



Installation Instructions

1. Attach the mounting pedestal securely to the elevator crosshead beam.
2. Place the iLand Compact on the mounting pedestal and slide it into position so that the Position Encoder Wheel is touching the front face of the rail. If necessary, loosen the screws that adjust the position of the Leveling Sensor Bracket(s) and slide the brackets back away from the rail.
3. Move the base of the iLand Compact forward until the Parallel Arms are approximately vertical and fasten it to the pedestal using four 1/2" (or 3/8") bolts, flat washers, lock washers, and nuts (see Figure 3).
4. **Caution!** Leveling sensors can be damaged by collision with rail clamps and bolts, etc. Move the car cautiously until adequate clearance is verified. **Damage due to mechanical contact is NOT covered by warranty! See Caution below.**

Figure 3.



5. Place a magnet on the rail as shown in Figures 4 and 5. below. iLand Compact must be adjusted so that the Leveling Sensors are centered on the magnet with the face of the sensor board 1/4 inch (± 1/16 inch) from the surface of the magnet. Magnets may be stacked to increase height if needed.

Figure 4. Magnet position on the rail (side view)

Note: The front door floor leveling magnet and leveling sensors are shown in this picture (left side). The rear door floor leveling magnet and sensors, if applicable, are mounted on the right side of the rail (See Figure 5).

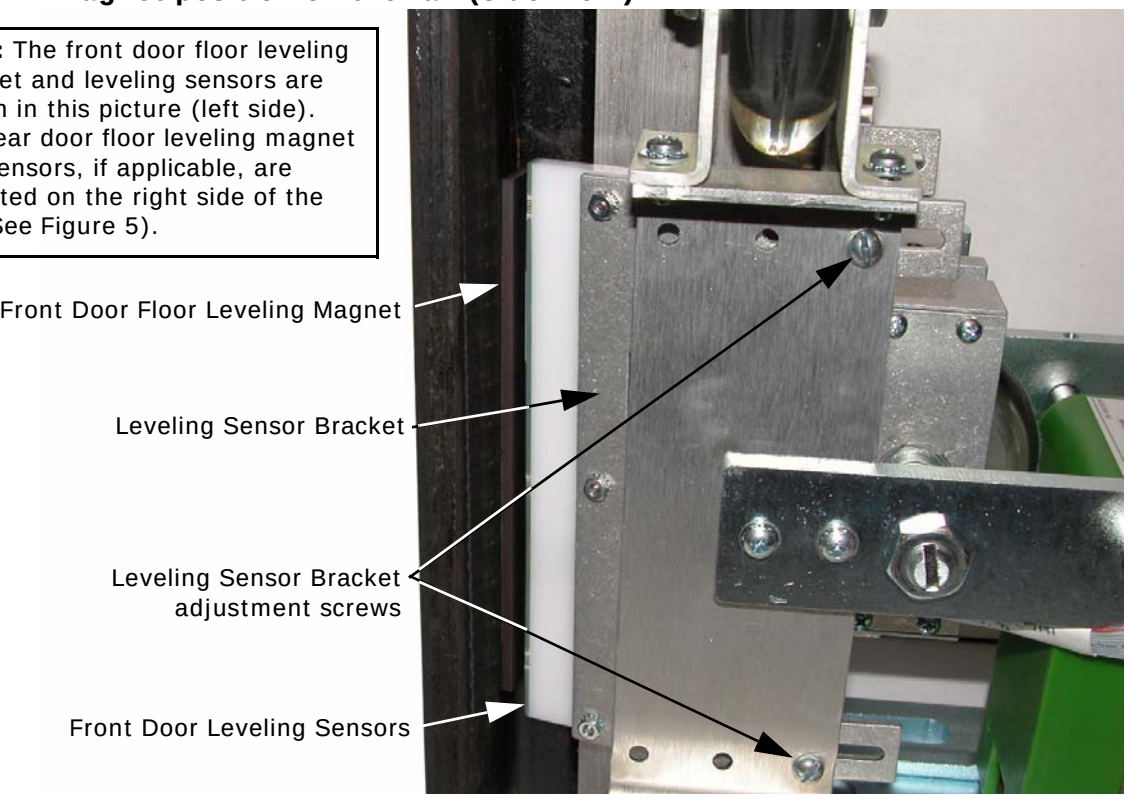
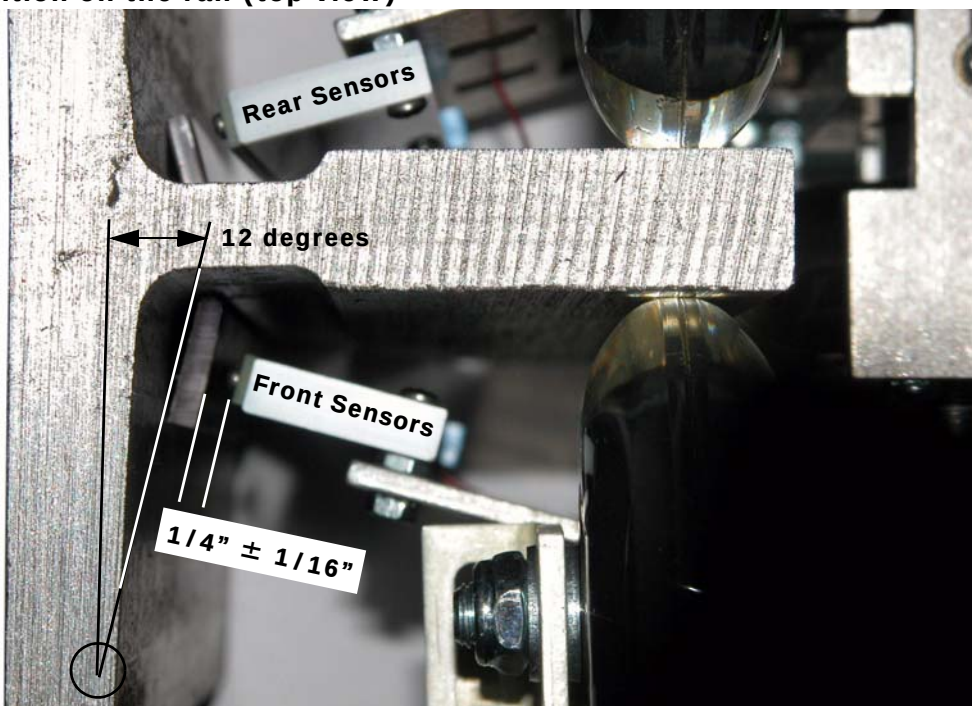


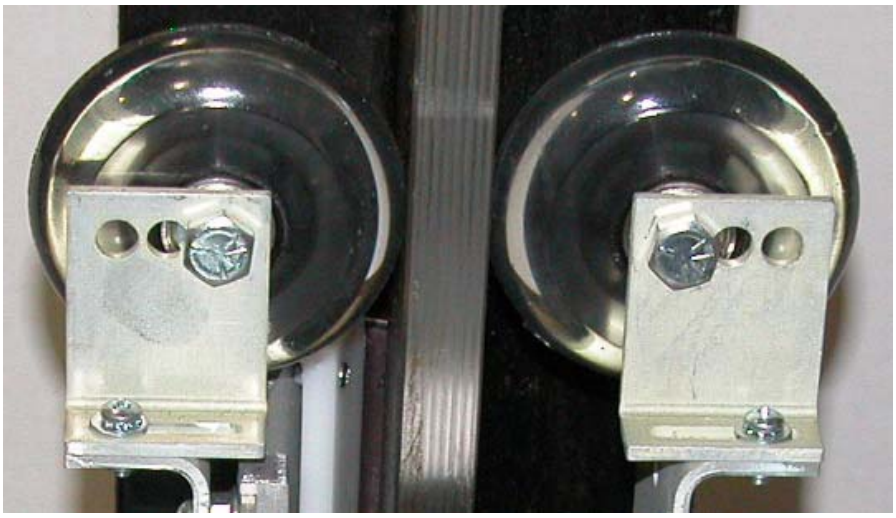
Figure 5. Magnet position on the rail (top view)

The magnet should be on an angle of approximately 12 degrees with respect to the back surface of the rail.

The Leveling Sensors should line up with the center of the magnet with the face of the sensor board 1/4" (± 1/16") from the surface of the magnet. Magnets may be stacked to increase height if needed.



6. For a front door only iLand Compact (iLand-1-C), adjust the guide rollers so that the Leveling Sensor is centered on the magnet (see Figures 5 and 6. Ensure that the Guide Rollers are snug against the rail.



7. For a front and rear door iLand Compact (iLand 2-C), it may be necessary to adjust both the Guide Rollers (Step 6) and the Carrier Arms in order to get both Leveling Sensors centered on their respective magnets. Loosen the Carrier Arm set screws and move the arms closer together or farther apart (see also Figure 7).

8. Once the Leveling Sensors are centered on their respective magnets, adjust the Position Encoder Wheel so that it is centered on the rail. Loosen the lock nut and adjust the screw. Then retighten the lock nut.

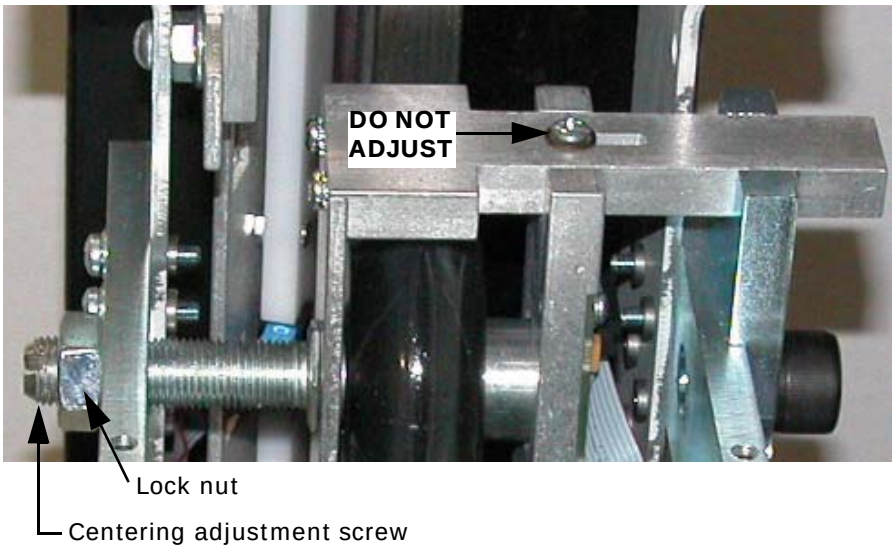
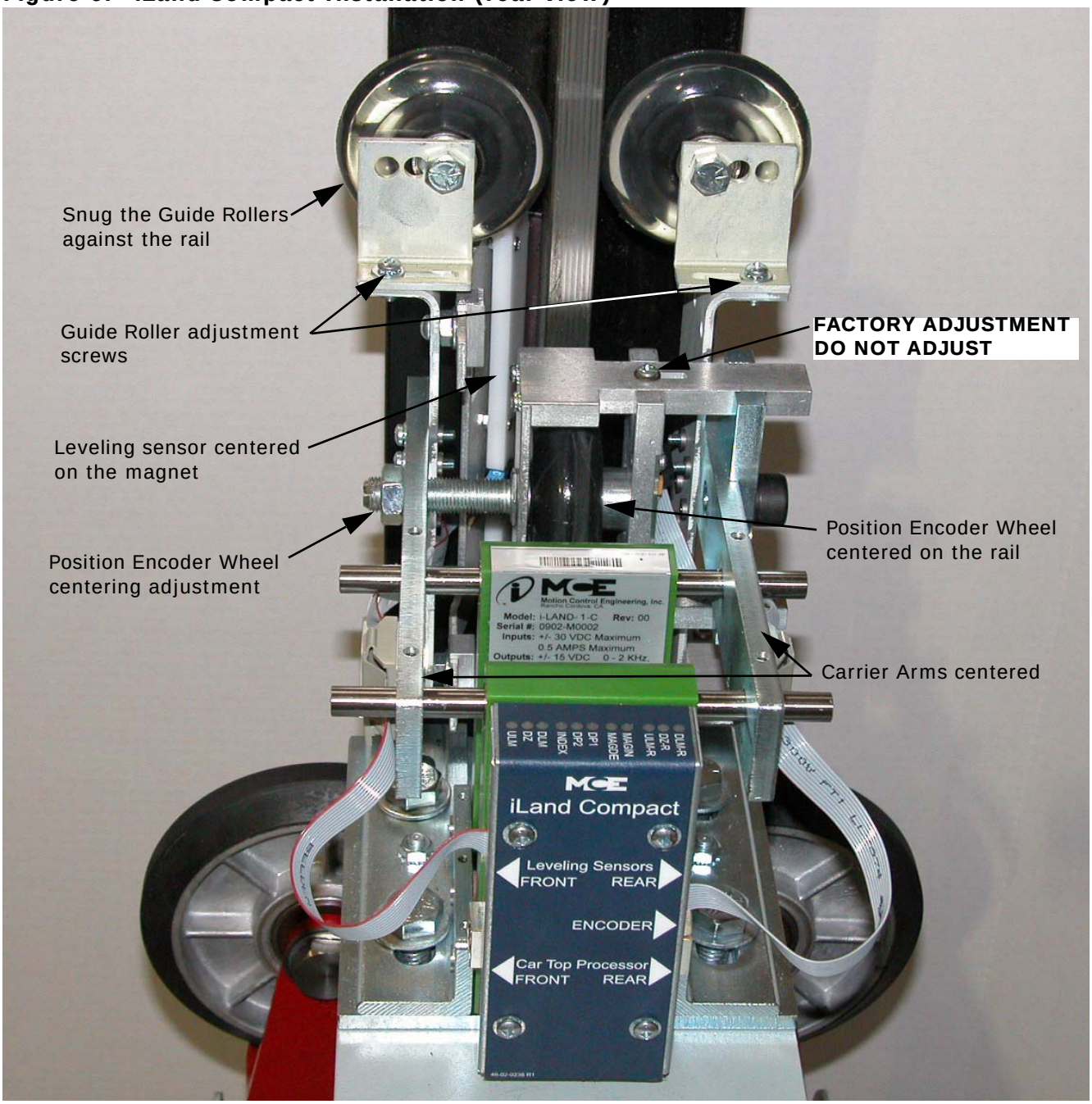


Figure 6. iLand Compact Installation (rear view)



Installing the Floor Leveling Magnets

In a typical, front-door only, installation, a single 6-inch strip magnet attached near the hollow of the rail curve (left side) is used to indicate the level-with-floor position for each landing at which the elevator car will stop. If the elevator car has rear (or side) doors as well, a second 6-inch strip magnet is attached in the right side of the rail and a second set of floor leveling sensors on the right side of the iLand is used.

There are three important dimensions to keep in mind when attaching the floor magnets:

- The magnet must be positioned so that, when the car is level with a floor, the magnet is lengthwise between the Up Leveling and Down Leveling sensors (see “Magnet position on the rail (side view)” on page 6) and centered on the Door Zone sensor with the South pole surface facing out.
- The magnet must be attached at an angle of about 12 degrees from the rail hollow (see “Magnet position on the rail (top view)” on page 6). (This aligns the face of the magnet with the leveling sensors.
- The “thickness” of the magnet strips (the distance from the outer magnet face to the rail behind the magnet) must be considered so that some magnets do not “stick out” farther than others. (This ensures that the gap between the sensors and the magnet face will remain consistent at different floor levels.) The iLand assembly automatically compensates for some rail distortion using the Position Encoder wheel and the two guide rollers.

Caution

At points where the rails are attached or where rail sections meet, the clearance for the sensors may be reduced by clamps, bolts, and other hardware. Check your initial floor leveling sensor adjustments at the worst of these points to make certain the sensors or other landing system hardware will not be damaged when the car runs past these points. Check along the entire rail to ensure that the clearance between the face of the sensor board and the magnets is 1/4 inch (± 1/16 inch). Magnets may be stacked to increase height if needed.

Warning! Damage due to mechanical contact is NOT covered by warranty.

Floor Leveling Magnet Installation Instructions

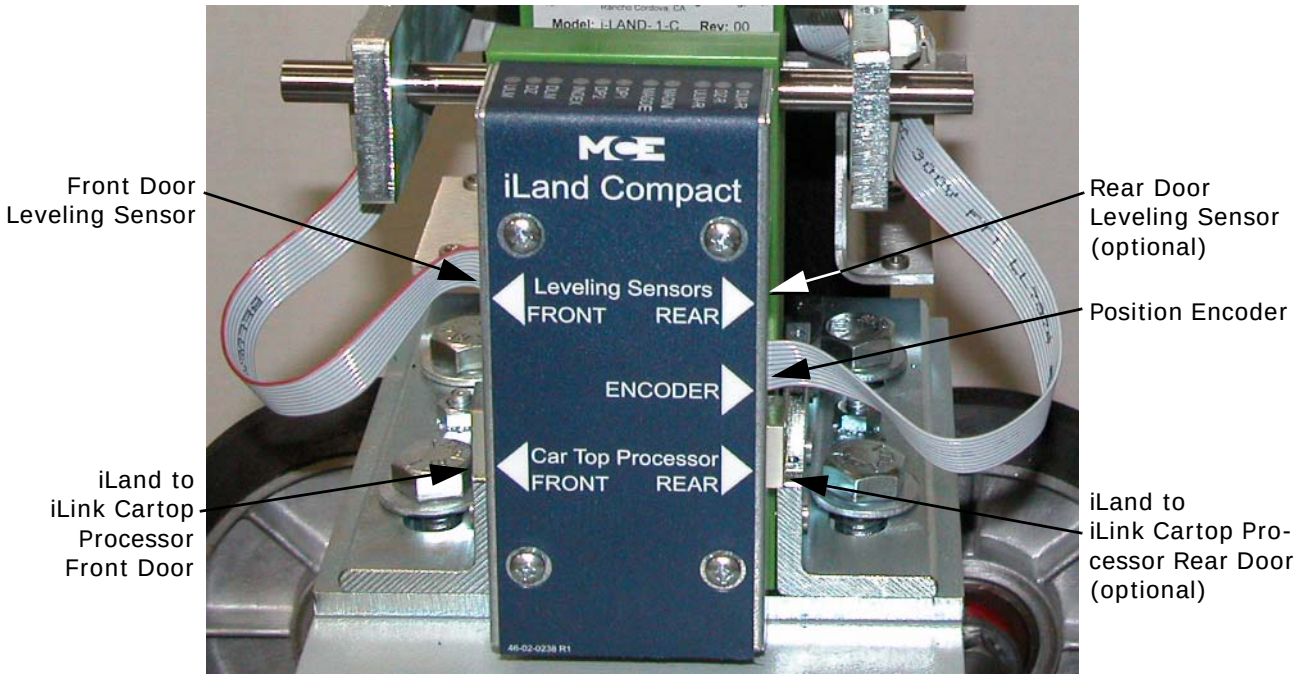
1. On Inspection mode, position the elevator car so that it is **level** with a landing. Inspection speed may be reduced to help stop the car precisely at floor level (iView > Controller > View > Configuration > Pattern > Modes tab).
2. Mark the position of the top and bottom leveling sensors as shown below. Note that the sensors are slightly in from the edges of the circuit board. Accurate magnet position assures the best possible position tracking.

3. Move the car down one to two feet. Clean the hollow of the rail where the magnet will be attached to remove all grease and dirt (Use acetone, alcohol, or other industrial solvent).
4. Center the magnet vertically between the marks with the South pole facing outwards. (Magnets supplied by MCE have an adhesive strip and paper on the North face. If necessary, use a compass to check North/South polarity.)
5. Move the car back into position and verify that the face of the sensor board is within 1/4" (6 mm) ± 1/16" (1.5 mm) from the face of the magnet and the sensors are centered on the magnet. If the iLand Landing System is powered (connected to a working iLink), the ULM, DLM, and DZ LEDs will all be lighted if the magnet is positioned properly. If not, adjust the magnet and re-test. Note: If the magnet is less than six inches long, only the DZ sensor may be lighted when the magnet is positioned properly.
6. When ready, attach the magnet to the rail using a good quality construction glue. Then move to the next landing, etc. (Some installers prefer to temporarily attach the magnets and, after adjusting the sensors and learning the hoistway, test their placement. Then go back and make adjustments before using a permanent glue.)

Cabling Connections

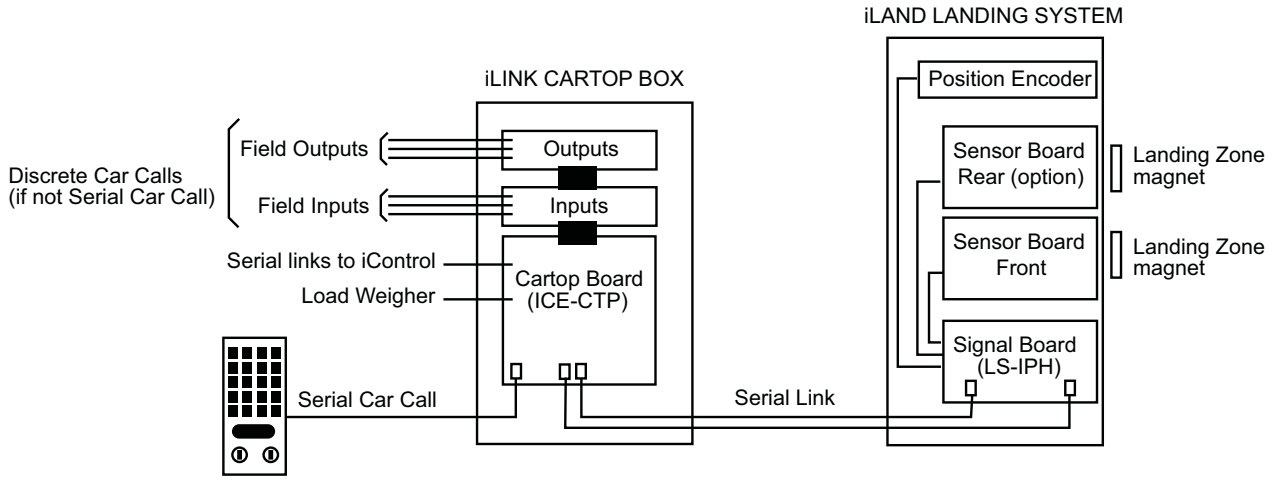
The Position Encoder and Leveling Sensors connect to the iLand Signal board (LS-IPH) through short, factory-assembled cables with a connector at each end. These cables should already be in place and connected. If they have been removed, they need to be reconnected. Refer to Figure 7 for guidance.

Figure 7. iLand Cable Connections



The cables from the iLand Landing System (LS-IPH board) to the iLink Cartop Processor (ICE-CTP board) are supplied (C-ETHERENET-BGE-XX). They should be routed through flexible conduit from the iLand connectors shown in Figure 7 to the iLand Front Door and, if applicable, iLand Rear Door connectors on the ICE-CTP board in the iLink Cartop Box as shown in Figure 8.

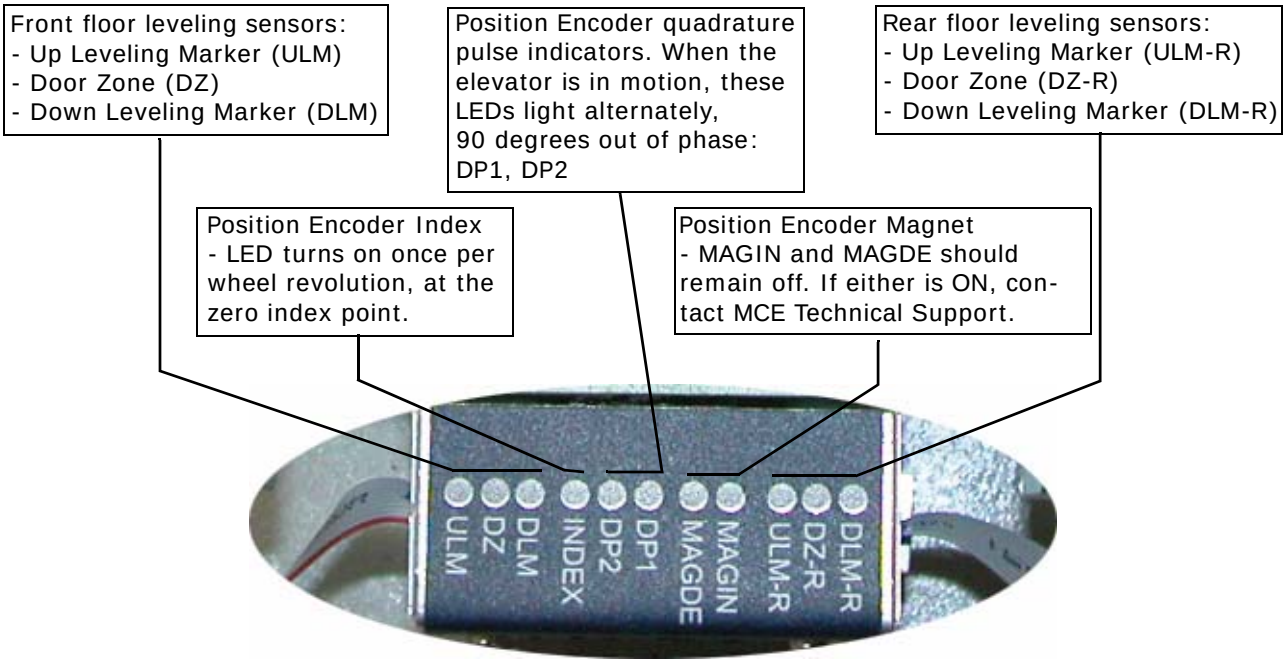
Figure 8. Cartop Interconnection



iLand Status LEDs

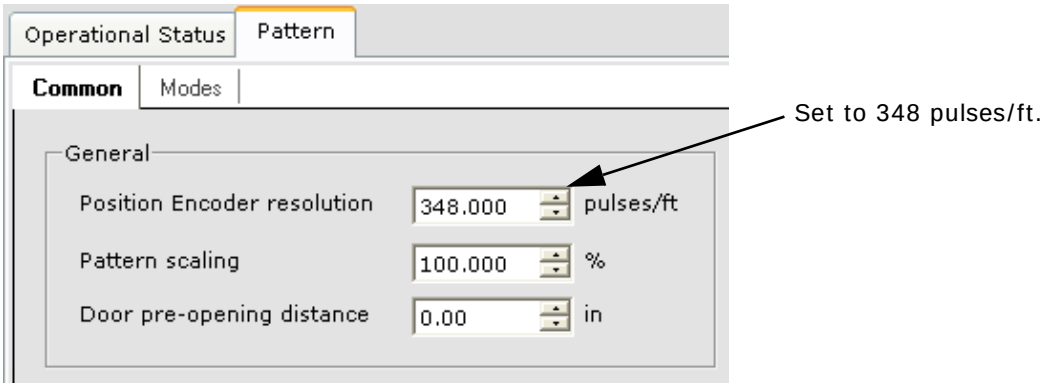
The iLand signal board enclosure reveals status LED sets for the front and rear floor leveling sensors and the position encoder sensor. Refer to the illustration below.

Figure 9. iLand Status LEDs



Setting the Position Encoder Resolution parameter

For the iLand Compact landing system, the *Position Encoder resolution* parameter must be set to 348 pulses per foot (iView Controller > View > Configuration > Pattern > Common tab).



Calibrating the Floor Offsets

This is the final step to installing the iLand Compact Landing System (see “Calibrating the floor offsets” in Section 4 of the User Guide). If this is a new installation, it is best to wait until the car has been fully adjusted so that it stops consistently and accurately at the floors. When replacing an iLand-H Landing System, the adapter kit helps bring the leveling sensors into proper position with respect to the existing leveling magnets. Perform this calibration now and make any adjustments needed to ensure that the car stops “spot-on” at every floor.