

AE-MAESTRO

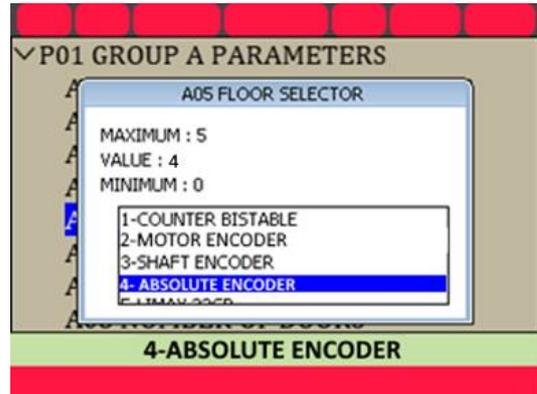
Integrated Lift Control System

APPENDIX-1

AP-01 FLOOR SELECTOR INSTALLATION AS LIMAX 2M ENCODER

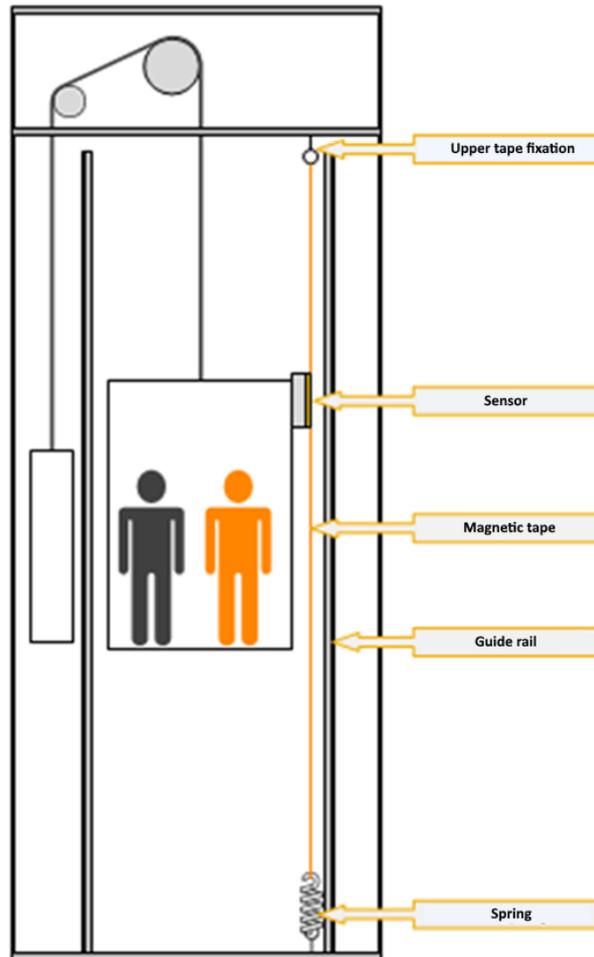
PREFACE

- The purpose of this document is to explain the installation of the **floor selector system** and adjustment of floor levels in case of floor selector is selected as **ABSOLUTE ENCODER-LIMAX 2M**, where **A05=4**.
- A more detailed discussion about floor selector systems can be found in **users manual in section 5.1**.



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Document Code : AEM-INSEN-AP01-LMX2M
Document Version : 1.0 www.aybey.com

INSTALLATION PRINCIPLE



INSTALLATION WITH SPRING

The magnetic tape is installed freely suspended in the shaft. It can be fixed with the RMS mounting kit (available as option) on the guide rail. Alternatively, fixation in the shaft head is either on beams or directly bolted into the ceiling. The necessary tension in the tape is provided by a spring.

The sensor head can be mounted onto the car body or car frame again depending on the specific conditions of the elevator.

For detailed information about the installation, you can visit www.elgo.de, you can reach the LIMAX 2M installation manual.

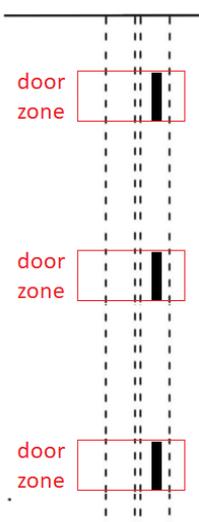
INSTALLING DOOR ZONE SWITCHES ML1 AND ML2

- **ML1** and **ML2** are used to detect door zone, where doors are allowed to be opened.
- They are mono-stable magnetic switches and used together with strip magnets.
- They are placed one on the other.
- Mount ML1 and ML2 switches to the car frame on top of the car as shown in the figure by using the supplied holder.
- **ML1 must be placed below** and ML2 above.
- The input terminals of ML1 and ML2 are fixed. No input definition is required.
- Distance between magnetic switches and strip magnet must be around 1cm.



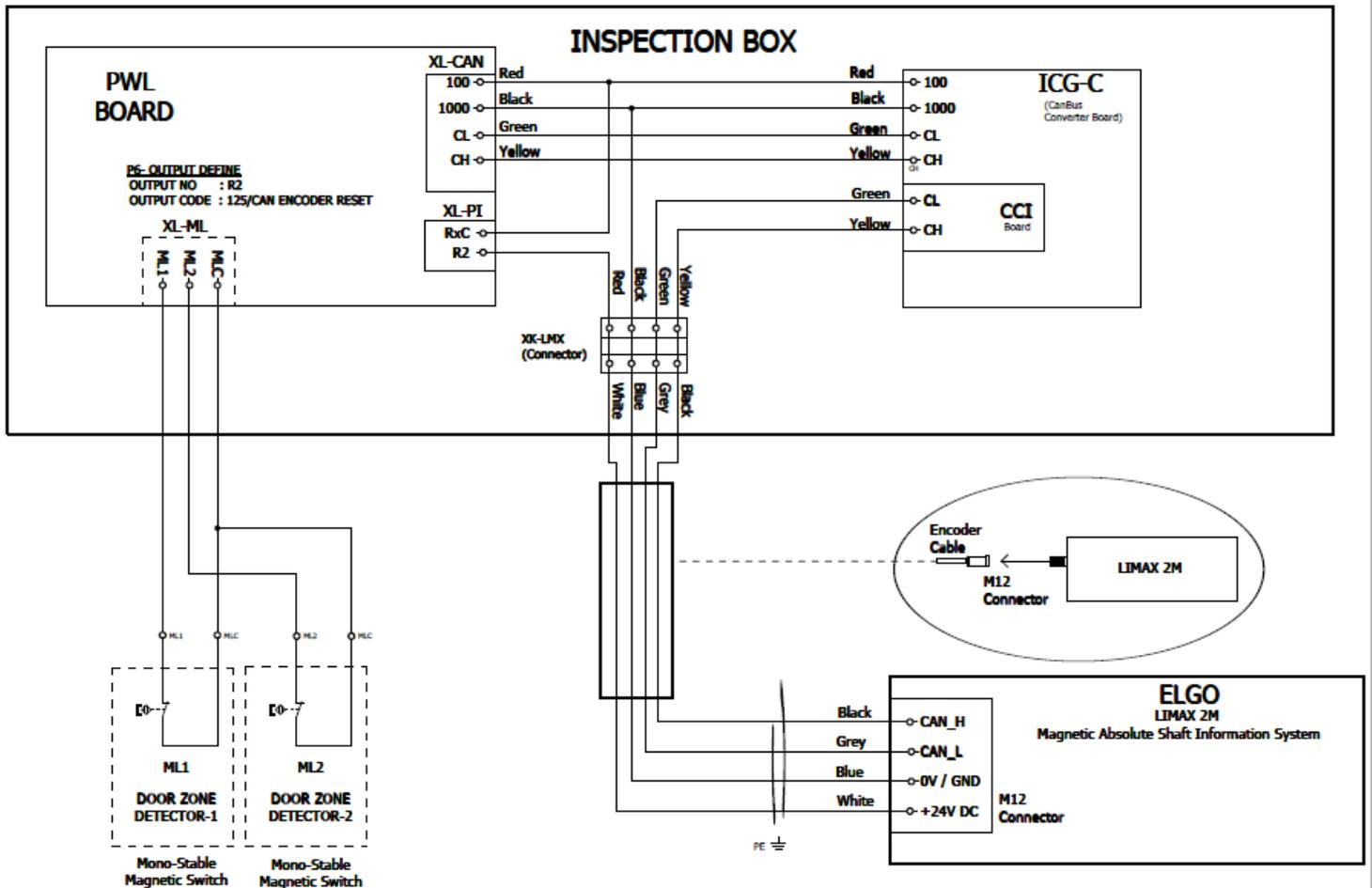
- Place strip magnets onto the rails in front of the magnetic switches.
- The side (pole) of the strip magnet is not important in placing.
- The length of the strip magnets determines the length of door zone.
- The door can be opened only and only if ML1 and ML2 are both are in front of the magnet strip.
- Therefore, **the center of these magnets must be located exactly at the floor levels.**
- To check the operation of ML1 and ML2 move the car by using inspection or recall command buttons.
- ML1 and ML2 must be ON when they are in front of the strip magnets placed at door open zone and OFF otherwise.

Vertical Cross Section of the Shaft



ELECTRICAL CONNECTION

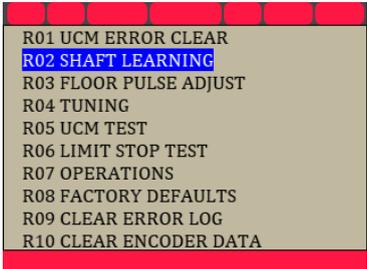
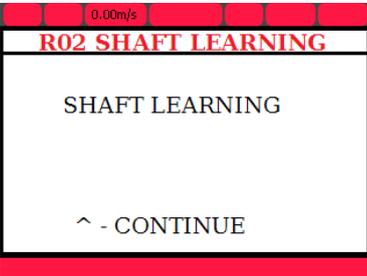
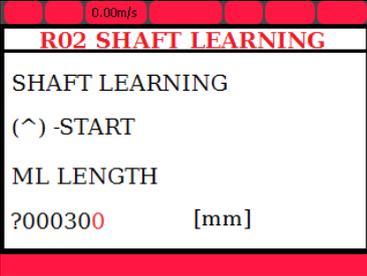
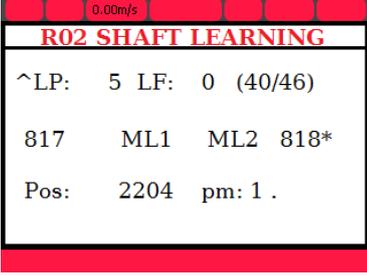
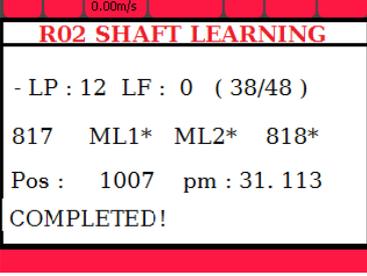
Limax 2M encoder cable is connected to terminal XC-L2M located in inspection box.



PARAMETERS

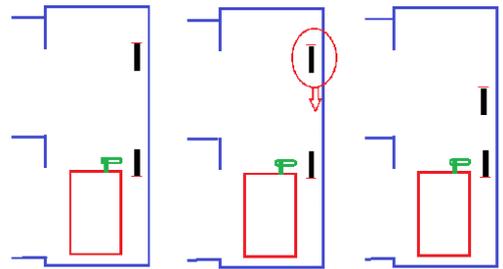
Please set the parameters below as follows:

- [A28] 817 Path = 1400
- [A29] 818 Path = 1400
- [E10] Encoder CAN Channel = 0 – CAN0
- [A11] Level Detector = 1 – Encoder

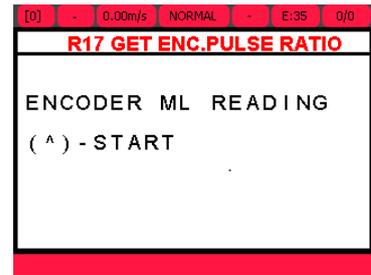
SHAFT LEARNING	
<ul style="list-style-type: none"> • After the lift has been correctly balanced with counterweight you can start adjusting floor levels. • Shaft learning must be completed successfully before starting with normal travel. • Check Parameter for A05-FLOOR SELECTOR. It must be 4 [A05=4]. • Be sure that ML1, ML2, switches and related magnets have been installed as explained above and their operation has been checked successfully. • Move the car to the lowest floor. • If the lift has more than two floors you can execute R02-SHAFT LEARNING operation, firstly. • If the lift has only two floors, then skip the next section and proceed to the section SHAFT LEARNING FOR 2 FLOORS. 	 <p>R01 UCM ERROR CLEAR R02 SHAFT LEARNING R03 FLOOR PULSE ADJUST R04 TUNING R05 UCM TEST R06 LIMIT STOP TEST R07 OPERATIONS R08 FACTORY DEFAULTS R09 CLEAR ERROR LOG R10 CLEAR ENCODER DATA</p>
SHAFT LEARNING FOR SYSTEMS WITH MORE THAN 2 STOPS	
<ul style="list-style-type: none"> • Go to the R02 SHAFT LEARNING section under SERVICES icon in hand terminal. • The lift must be in NORMAL OPERATION to start the operation. Switching to inspection terminates the process. • The lift moves in this operation with the speed registered in parameter S04-INSPECTION SPEED. Check this parameter. • In shaft learning operation the lift will travel along the shaft. No external command will be accepted. Do not leave somebody in the cabin during this process. • Press UP button to initiate the shaft learning operation. 	 <p>0.00m/s R02 SHAFT LEARNING SHAFT LEARNING ^ - CONTINUE</p>
<ul style="list-style-type: none"> • You will be asked for giving the length of the strip magnet used for ML1 and ML2. • This information is used to calculate the length of an encoder pulse. • Enter here the length of the strip magnet that you have used in your system in mm. 	 <p>0.00m/s R02 SHAFT LEARNING SHAFT LEARNING (^) -START ML LENGTH ?000300 [mm]</p>
<ul style="list-style-type: none"> • Then the car moves firstly to measure the length of the strip magnet and calculate pulse / mm ratio. • From this point on all measurements will be given in mm. • Then the car will travel along the shaft up and down to get the locations of the floor magnets. 	 <p>0.00m/s R02 SHAFT LEARNING ^LP: 5 LF: 0 (40/46) 817 ML1 ML2 818* Pos: 2204 pm: 1 .</p>
<ul style="list-style-type: none"> • After learning process, the estimated floor levels are saved. • Return to the main menu. • Check the floor levels by travelling along the shaft. • There are two ways to adjust floor levels: <ol style="list-style-type: none"> 1) By editing the offset values for each floor in hand terminal 2) By travelling in the car and correcting them floor by floor by moving in levelling speed. • Skip the next section and proceed to section EDITING OFFSET VALUES. 	 <p>0.00m/s R02 SHAFT LEARNING - LP : 12 LF : 0 (38/48) 817 ML1* ML2* 818* Pos : 1007 pm : 31.113 COMPLETED!</p>

SHAFT LEARNING FOR SYSTEMS WITH 2 STOPS

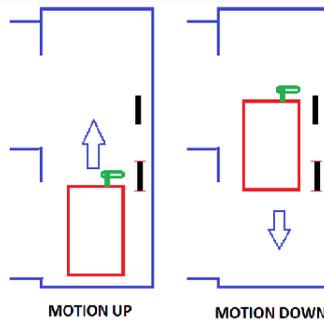
- If the lift has only two stops, then you should carry on the shaft learning process in two stages, Measurement of Pulse Ratio and Learning Floor Positions.
- You should replace the upper ML magnet to measure ML length, temporarily.
- Before starting any operation go into the shaft and move the upper ML magnet down anywhere between two floors.



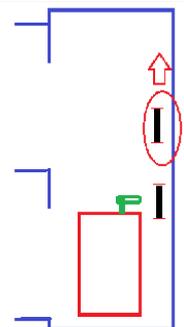
- Move the car to the lowest floor.
- Then execute **R17-GET ENC.PULSE RATIO** to learn the ratio of pulse/mm.
- Press **UP** button to start the operation.



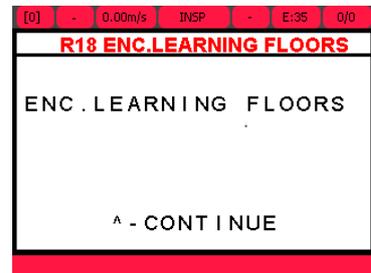
The lift will go up, will stop after exceeding ML upwards and returns back to the ground floor.



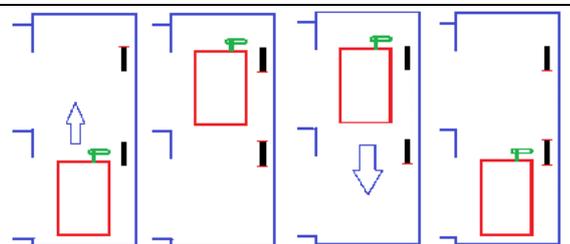
After completing M17 service routine go into the shaft once more and move the ML magnet between floors to its original position at the upper floor.



- Then execute **R18- ENC.LEARNING FLOORS** service routine to learn the positions of the floors.
- Press **UP** button to start the operation.

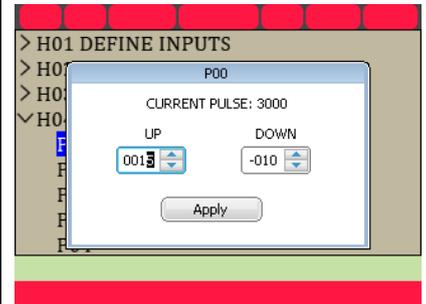


- The lift will travel firstly upwards starting from the ground floor and then downwards.
- When the operation has been completed successfully then all floor positions are registered.

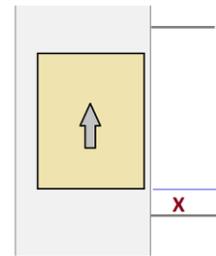
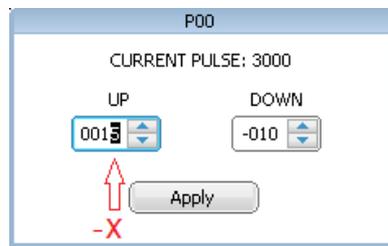


EDITING OFFSET VALUES

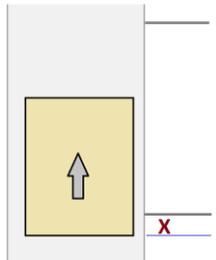
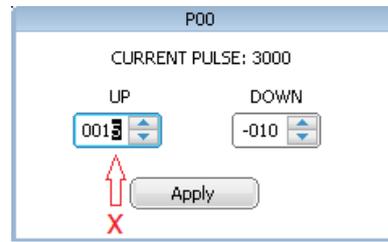
- The floor levels can be edited by using the **H04-ENCODER FLOOR LEVELS** menu under SYSTEM PARAMETERS icon.
- First, select the floor you want to edit its level and press ENT key.
- Then, you will see two offsets for each floor level, one for approaching the floor above and one for below.
- To correct the level after the lift has come to the floor from below edit the number in UP.
- To correct the level after the lift has come to the floor from above edit the number in DOWN.
- Offsets can be positive or negative numbers in mm.
- A positive offset increases the floor level where negative one decreases.
- Offsets for up and down motion are independent.



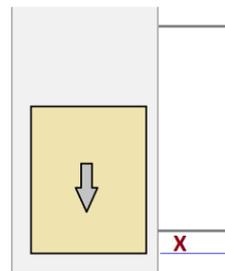
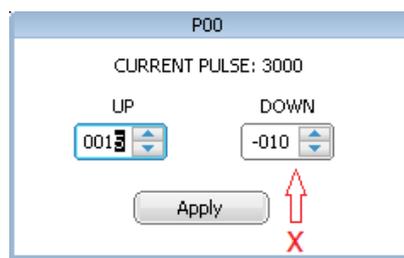
If the car passes floor level by **x mm** when stopped after **upwards** motion then set the **upper offset** as **(-x)**.



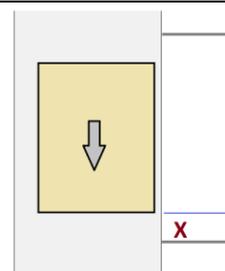
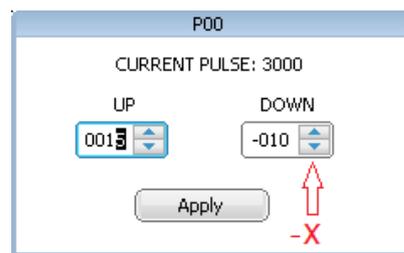
If the car stays **x mm** below floor level when stopped after **upwards** motion then set the **upper offset** as **(+x)**.



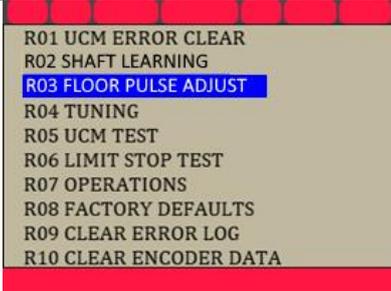
If the car passes floor level by **x mm** when stopped after **downwards** motion then set the **lower offset** as **(+x)**.



If the car stays **x mm** above floor level when stopped after **downwards** motion then set the **lower offset** as **(-x)**.



ADJUSTING FLOOR LEVELS BY MOVING INSIDE THE CAR

<ul style="list-style-type: none"> Floor levels can be adjusted by using car panel inside the cabin. There is special utility for this purpose under SERVICES icon as R03-FLOOR PULSE ADJUST. To facilitate the job connect the hand terminal to the CAN-BUS in COP or in inspection box such that you can immediately edit the values. Door bridging board must be installed for this operation. Re-leveling speed is used for level adjusting. 	
<ul style="list-style-type: none"> In this procedure first two call buttons and door open button on COP are going to be used as command panel. The car must be resting at any floor level to start this operation. When the operation starts the controller will open the doors completely and cancel landing calls but car calls will remain active. 	
<ul style="list-style-type: none"> Press UP button on the hand terminal to start the operation. Go to all floors once from below and once from above. Save new floor positions for each floor as explained below. 	<div style="border: 1px solid black; padding: 5px; text-align: center;"> SHAFT LEARNING (↑)-START </div>

FLOOR LEVEL ADJUSTING BY MOVING THE CAR

<p>Let's say the car is resting at 0. When the operation has been started...</p> <p>Simply press the related car call button to go to another floor</p>	<p style="text-align: center;">To go to another floor</p> 
<p>When the car comes to the floor you wanted, namely 1, then observe the level of the car relative to the floor.</p> <p>If the car is resting above the floor level ...</p> <ul style="list-style-type: none"> Press door open button and then press "0" button while holding door open button pressed. The car will move downwards as long as you hold both buttons pressed provided that ML1 and ML2 see the strip magnet. If you press only 0-button then the controller considers it as a car call to ground floor. 	<p style="text-align: center;">To move car downwards</p> 
<p>If the car is resting below the floor level ...</p> <ul style="list-style-type: none"> Press door open button and then press "1" button while holding door open button pressed. The car will move upwards as long as you hold them pressed provided that ML1 and ML2 see the strip magnet. If you press only 1-button then the controller considers it as a car call to the first floor. 	<p style="text-align: center;">To move car upwards</p> 

<p>If the car is resting exactly at the floor level now ...</p> <ul style="list-style-type: none"> • Press and hold the car call button of the current floor for two seconds. • After two seconds you will see its led flashing. This means that your data has been successfully saved. • The display of the hand terminal will confirm your saving. <div data-bbox="229 412 676 544" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>FLR: 01 [2000] adj SAVED</p> </div>	<p>To save the floor position</p> <div data-bbox="1241 342 1374 465" style="text-align: center;">  </div>
<p>If you have finished the adjustment related to this floor...</p> <ul style="list-style-type: none"> • Simply press the related car call button to go to another floor. • Repeat the adjustment procedure as explained above for all floors in two directions. 	<p>To go to another floor</p> <div data-bbox="1241 651 1374 775" style="text-align: center;">  </div>
<ol style="list-style-type: none"> 1. After all the floors has been set correctly, exit from this process by pressing ENT button on the hand terminal. 2. You can do further changes by editing floor offsets in H04-ENCODER FLOOR LEVELS menu as described above. 	<p>To exit from this procedure</p> <div data-bbox="1241 864 1366 920" style="text-align: center; color: blue;"> <p>ENT</p> </div>