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ALMEGA POSITIONING SYSTEM: QUICK SETUP GUIDE

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1. PRE-CHECKS (see last page).
2. SETTING THE OVERRUN DISTANCE
In general the default value of 500mm should suffice to cover the max distance the lift could ever overrun. However check this distance to ensure the max shaft position values are set correct, before using in normal operation. It can be adjusted as below.
 - a. Set parameters MENU->POSITION SYSTEM SETUP->OVERRUN TOP/BOT, typically-500mm.
3. CLEARING OUT THE FLOOR LEVELS / PREVIOUSLY LEARNED VALUES
This is recommended for each new installation to clear (at the start of installation) any previously learned floor position values. If this is not carried out the lift may have limited travel because of incorrect information such as the terminal limits. **Once the lift has been commissioned DO NOT USE THIS FEATURE, IT WILL WIPE ALL FLOOR LEVELS!**
 - a. Select option MENU->POSITION SYSTEM SETUP->CLR ALL FLOOR LEVELS->YES to clear floor levels, terminal limit positions, and correction information. ***Note only when on Inspection***
4. SETTING THE TERMINAL LIMITS
 - a. **If parameter “SOFTWARE TERM LIMITS” = NO , or does not exist (Mechanical Terminal Limit Switches are fitted)**
 - i. Set Terminal Stopping limit switches above/below, top/bot floor level as required.
 - b. **Else if Parameter “SOFTWARE TERM LIMITS” = YES.**
Note: Software terminal limits are NOT recommended when using an Over-speed Governor Encoder because excessive rope slip could cause the terminal limits to move position and hence the lift could either under-travel, or over-travel onto the Over-travel limits.
 - i. Set parameter MENU->POSITION SYSTEM SETUP->UP TERM LIMIT DIST as desired (distance above top floor level). Typically set at 25mm.
 - ii. Set parameter MENU->POSITION SYSTEM SETUP->DN TERM LIMIT DIST as desired (distance below bot floor level). Typically set at 25mm.
 - iii. **If Terminal Limits are required before the positions are learned**
 1. Take the lift to the terminal floors and record the Absolute Top / Bottom Position Values, Position Value found by pressing F1 and reading P=????
 2. Enter the values into system as SET FLOOR LEVELS (see 6). (POSITION SYSTEM SETUP->FLOOR LEVELS).
 3. The terminal limits will now be set e.g. 25mm above and below top/bot floor levels. The lift will stop on these on Inspection Control.
5. LEARNING THE FLOOR LEVELS BY TAKING THE LIFT TO EACH FLOOR ON INSPECTION.
 - a. **If PANEL TEST CONTROL is fitted**
 - i. Switch to Inspection.
 - ii. Take the lift to the bottom, and ensure not on the mechanical stopping limit (so the bottom floor level is not below the limit!)
 - iii. Record the bottom floor level. Position Value is found by pressing F1 and reading P=????
 - iv. Take the lift UP to the next floor level, and Record the floor level.
 - v. Continue until all floor levels have been recorded.
 - b. **Else if PANEL TEST CONTROL is NOT fitted**
 - i. On the main terminal rail (lift shaft/car side) remove the wire in terminal **TS** and mark it, then wire in the same terminal as **TS1**. This will switch to Inspection.
 - ii. Take the lift to the bottom (by bridging the Test Down connections TF and TD). Ensure not on the mechanical stopping limit (so the bottom floor level is not below the limit!)
 - iii. Record the bottom floor level. Position Value is found by pressing F1 and reading P=????
 - iv. Take the lift UP to the next floor level, and Record the floor level.
 - v. Continue until all floor levels have been recorded.

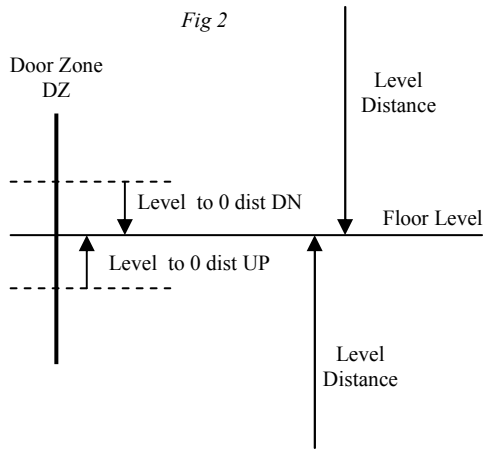
Fig 1

Typical Table of Results (3m floor heights)

Floor 3	= 1000mm
Floor 2	= 4000mm
Floor 1	= 7000mm

Typical Settings (0.5m/s)

Level To 0 Dist UP	= 25mm
Level To 0 Dist DN	= 25mm
Level Distance	= 180mm
Decel Rate	= 200mm/s sqrd



6. ENTER FLOOR LEVELS

Once the levels have been learned / recorded a table will be produced (as Fig1). These need to be entered into the position system as below.

- a. From the menu POSITION SYSTEM SETUP->FLOOR LEVELS, select each floor in turn and use the LEVEL option (MODE+UP moves cursor) to enter the floor levels manually; then press ENTER to store.

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FLOOR LEVELS in mm Fig 3
FLOOR [ 2 ]
ADJUST [ 0 ]
LEVEL - [ 4000 ]

MODE+UP Moves Cursor
POS Scale DESCENDING

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Pressing Mode and UP moves the Cursor between FLOOR, ADJUST, and LEVEL.
 The keypad keys (↑ and ↓) can be used to change the value within the brackets as described below:
 FLOOR: This is the Lift Floor Position, i.e. the number of recorded floor positions.
 ADJUST: This is the adjustment that can be made to the floor LEVEL position. The adjustment direction will appear when the value is altered. i.e. 100mm UP, or 5mm DN etc.
 LEVEL: This is the absolute floor position of the floor LEVEL. Adjusting this allows the user to enter numbers in absolute format, thus major floor adjustments are entered here.

7. PUT THE LIFT ON PREPARE TO TEST CONTROL (DOORS OFF)

- a. Press MENU on the Almega Keypad.
- b. Press DOWN ARROW once to highlight “ENGINEERS SELECTION”; Press ENTER
- c. Press DOWN ARROW 3 times to highlight “PREPARE TO TEST CTRL”; Press ENTER
- d. If “Password Lev 1 Req’d” is displayed at the bottom of the screen, Press and hold **MODE** on the Almega keypad, then press **ENTER**, whilst still holding **MODE**.
- e. Press UP ARROW to display “DOORS OFF”; Press ENTER.

8. ADJUSTING THE LEVELLING TIME (FROM THE CONTROL PANEL) (see Fig 2)

The levelling distance is pre-set at 180mm to allow 3 seconds of levelling at a typical level speed of 60mm/s (0.06m/s). It is recommended to have at least 3 seconds of level speed to allow the lift to consistently settle on level speed for differing load / oil conditions, thus maintaining floor level accuracy.

- a. Run the lift UP to a floor (preferably a middle floor to avoid terminal / over-travel limits).
- b. Record the time on level speed. If it is more than 3 seconds increasing the parameter POSITION SYSTEM SETUP->DECEL RATE will decrease the level distance and hence time. Similarly reducing the DECEL RATE will increase the level distance and hence time.

9. ADJUSTING THE LEVEL TO ZERO DISTANCE UP/DN (FROM THE CONTROL PANEL) (see Fig 2)

For example the 3 floor lift as Fig1.

- a. Run the lift UP to a floor (preferably a middle floor to avoid terminal / over-travel limits).
- b. Make a note of the position it stops at (e.g. 3995).
- c. Run the lift DN to the same floor. Make a note of the position it stops at (e.g. 4007).
- d. The results show in the UP direction the lift stopped high by 5mm and stopped low in the DN direction by 7mm. To compensate for this the parameters POSITION SYSTEM SETUP->LEVEL TO ZERO DIST UP/DN have to be adjusted accordingly. Thus increasing the UP distance by 5mm and the down distance by 7mm will compensate. **Increasing the distance compensates for overshooting floor level. Reducing the distance compensates for stopping short of floor level.**
- e. Try again to the same floor until the target value of 4000mm ±2mm is achieved. This procedure only has to be done for one floor, the other floors will be accurate according to these settings.
- f. For a 2 floor lift adjust LEVEL TO ZERO DIST UP/DN for the top /bottom floors respectively.

10. PUT THE LIFT ON PREPARE TO TEST CONTROL (DOORS PARK OPEN).

- a. As 7(a/b/c/d), but Press DN ARROW to display “PARK OPEN”; Press ENTER

11. SET FLOOR LEVELS.

Up to this point the actual physical floor levels should NOT have been set. The aim was to setup the positioning system to stop at the learned values rather than the actual floor levels. NOW is the time to set the actual floor levels from within the lift car!

- a. Travel to each floor in turn, making a note of the position error in mm. Travelling to each floor in both directions IS NOT NECESSARY as the system should be the same for both UP and DOWN.
- b. From the menu POSITION SYSTEM SETUP->FLOOR LEVELS, select each floor in turn and use the ADJUST option (MODE+UP moves cursor) to adjust the floor levels. E.g. floor level = 20mm HIGH, adjust 20 DN to correct; then press ENTER to store.

FLOOR LEVEL ADJUSTMENT INFORMATION:

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FLOOR LEVELS in mm Fig 4
FLOOR - [ 2 ]
ADJUST- [ 20   DN ]
LEVEL  [      4000 ]

MODE+UP Moves Cursor
POS Scale DESCENDING
    
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Pressing Mode and UP moves the Cursor between FLOOR, ADJUST, and LEVEL.

The keypad keys (↑ and ↓) can be used to change the value within the brackets as described below:

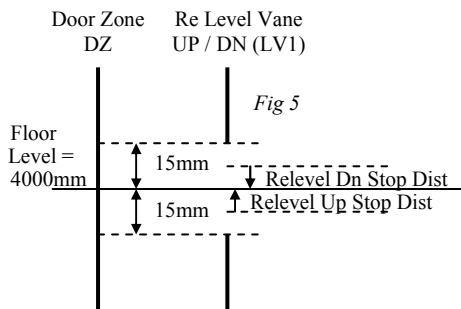
FLOOR: This is the Lift Floor Position, i.e. the number of recorded floor positions.

ADJUST: This is the adjustment that can be made to the floor LEVEL position. The adjustment direction will appear when the value is altered. i.e. 100mm UP, or 5mm DN etc.

LEVEL: This is the absolute floor position of the floor LEVEL. Adjusting this allows the user to enter numbers in absolute format, thus major floor adjustments are entered here.

12. SETTING UP RE-LEVELLING.

Only setup re-levelling when the floor levels are correctly set otherwise the position point will be inaccurate thus the re-levelling operation will most likely report warnings and errors. As can be seen from Fig 5 the distances are short so accurate floor levels in the first place will ensure trouble free operation.



- a. Ensure Re-level vane is set 15mm above / below floor level as shown in fig 5. Test for Re-level UP as follows:
- b. Lower the lift down until it actuates the re-level vane.
- c. Ensure the lift re-levels UP on level speed.
- d. Make a note of the position where it stops, e.g. 3993.
- e. The result shows in the UP direction the lift stopped high by 3mm. Therefore increase POSITION SYSTEM SETUP->RELEV UP STOP DIST by 3mm to compensate.
- f. **Increasing the distance compensates for overshooting floor level. Reducing the distance compensates for stopping short of floor level.**
- g. Repeat the procedure for relevel DN (if reqd). Adjust parameter POSITION SYSTEM SETUP->RELEV DN STOP DIST to compensate.

13. TESTING THE SLOWING LIMITS

- a. Run the lift to a Terminal floor on HIGH speed. Press and hold both **MODE + MENU** on the Almega keypad. This will inhibit the position stepping and force the lift to slow on the slowing limit. If the lift stops out of the "WITHIN FLEV DISTANCE " the lift will not open its doors. If "OUT OF LEVEL RECOVERY" is set to YES, the lift will automatically re-level back to floor level and then open its doors. The procedure should also be repeated for a single floor run.

14. TESTING THE TERMINAL LIMITS

- a. Run the lift to a Terminal floor on any normal run speed. Press and hold both **MODE + ESC** on the Almega keypad. This will inhibit the stopping and force the lift to stop on the terminal limit. If the lift stops out of the "WITHIN FLEV DISTANCE " the lift will not open its doors. If "OUT OF LEVEL RECOVERY" is set to YES, the lift will automatically re-level back to floor level and then open its doors. This procedure may also be used to test OUT OF LEVEL RECOVERY at any floor.

15. CANopen INFORMATION

- a. The Positioning system is designed for use with Position Devices incorporating the CANopen industry standard communication protocol. Therefore information can be transferred from the device and viewed by selecting option MENU->POSITION SYSTEM SETUP-> CANOPEN INFO. In particular the error information can be viewed as below:
 - i. Schmersal USP: Screen 1 = USP wire Errors / Warnings
 - ii. Hengstler AC58: Screen 1 = Contains Alarm / Warning messages.

16. FURTHER INFORMATION FOR USE WITH AN OVERSPEED GOVERNOR ENCODER (If fitted)

a. **Resetting the Absolute Position:**

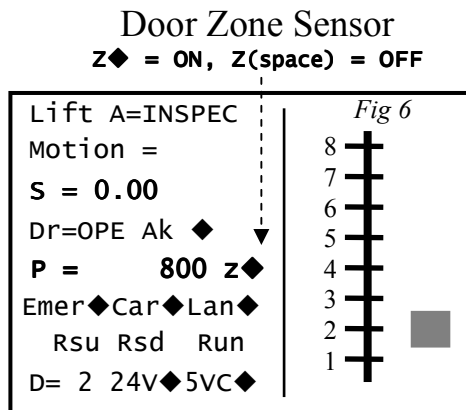
It may be necessary to reset the absolute position of the lift for the following reasons:

- i. Excessive Correction: See below
 - ii. Clear Correction Levels: With the lift physically at the bot flr level, select to clear. Select option MENU->POSITION SYSTEM SETUP-> RSET ENCODER POSITION ->YES to reset the absolute position of the encoder to the position of the bottom floor level.
- b. **Correction Point Moved:** It is vital that correction points do not move once set after a learn run. IT IS STRONGLY RECOMMENDED THAT CORRECTION SENSOR / POINTS ARE FIXED SO THAT THEY DO NOT MOVE. If they do move they will affect floor levels to the amount moved (i.e. 30mm UP if moved 30mm UP etc). Rectify by (v) "Corr Fault Info" (as below)
 - c. **Correction Point Missing:** If a correction point is not found the event "CORRECT POINT MISSING" is generated in the event logger, and the position error will NOT be corrected! This can be caused by (i)-(v) as "Corr Fault Info" (as below).
 - d. **Correction Point exceeded:** If the level of correction is exceeded, the event "POS DEV CORR EXCEEDED" is generated in the event logger, and the position error will NOT be corrected! The level in the software is typically set to 50mm. This can be caused by (iv) or (v) as "Corr Fault Info" (as below).
 - e. **Correction Fault Info:** When the lift has arrived at its destination it looks for a correction point before stopping. If missing / exceeded the lift will still operate as normal but floor levels will slowly drift over time (due to rope slip) until the app action [as below] is taken.
 - i. Corr Point missing [re fit corr point]
 - ii. Corr Sensor Failed [new sensor]
 - iii. Floor Level adjusted > half corr vane length (i.e. >150mm for a 300mm vane) [move corr point central then new learn run].
 - iv. Excessive OSG Rope Slip i.e. the OSG trips and the rope slips [move rope back, or reset abs posn, or new learn run]
 - v. Corr Sensor Moved [Move back, or new learn run]
 - f. **Correction information:** Select option MENU->POSITION SYSTEM SETUP-> CORRECTION INFO to view the current correction information. From this menu correction point parameters and current correction levels can be viewed for each floor. A test would be to run the lift to each floor and the current level should be similar for each floor. If one is vastly different to all the rest then typically the correction point for that floor has moved.
 - g. **Position Device Power Output:** Typically the position encoder will be powered through a relay output from the micro processor. This is to reset the encoder under communications failure by recycling the power. If a communications lost condition is detected this output will de-energise every 10 seconds for 2 seconds to re-cycle the power.

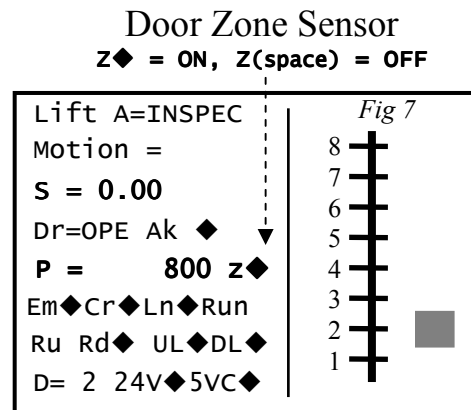
17. **PRE-CHECK INFORMATION:**

A. Door Zone Sensor / Door Zone Actuators Fitted At Each Floor Level.

- a. Ensure **Door Zone Actuators (DZA's)** are fitted at each flr lev and operate the **Door Zone Sensor (DZS)** fitted on the lift car. Also the **DZA's** are clear of any obstructions of the lift car and **DZS**.
- b. Also ensure the signal from the **Door Zone Sensor** can be seen in the lift controller. This can be achieved by pressing F1 on the Almega keypad which will display the screen as Figs 6/7 below:



(Software Terminal Limits NOT selected)



(Software Terminal Limits selected)

UL = Up Limit, DL = Down Limit

If UL/DL=? then not set and will be ignored

B. Motor Wiring / Speed

- a. Ensure motor windings and valves are wired correctly. Ensure the motor runs at the correct / expected speed when on Inspection, Normal and Level Speed. E.g. for 0.3m/s, the Almega LCD display will show "S = 0.30", and is the actual measured speed.

C. Almega Parameters

- a. TRAVEL SETUP (Press F3 on the Almega Keypad and Scroll Down with ↓)
 - STOP TIME = 0 Milliseconds
 - BRAKE RELEASE TIME = 0 Milliseconds
- b. POSITION SYSTEM SETUP (Press MENU on the Almega Keypad and Scroll Down with ↓)
 - SPEED PROFILE CONTROL = NO
 - WITHIN FLOOR LEV DISTANCE = 35mm
 - LEVEL TO ZERO DISTANCE UP = 25mm
 - LEVEL TO ZERO DISTANCE DN = 25mm
 - LEVelling DISTANCE = 180mm
 - ACCEL RATE = 1500mm/s²
 - SLOW DIST CALC NON PROF CTRL = TRAVEL SPEED PAR
 - OVRSPED GOV DIAMETER = Diameter of OSG (i.e. 300mm for Atwell VG OSG)

D. Slowing Limits

- a. Ensure slowing limits are set as the backup slowing distances (BSD) as below. (Also see shaft wiring drawing). Setting the distance too great may generate events "SLOWED: UP/DN SLOW LIMIT" and result in inaccurate floor levels at the terminal floors!

Speed (m/s)	BSD (mm)	Speed (m/s)	BSD (mm)	Speed (m/s)	BSD (mm)
0.2	= 250	1.0	= 900	2.0	= 2150
0.5	= 450	1.25	= 1200	2.5	= 3000
0.75	= 700	1.6	= 1600	3.0	= 3900

E. Overspeed Governor Encoder (if fitted)

- a. Ensure Correction Sensor/Points are firmly fixed and cannot move. Also central to floor level.
- b. Ensure the encoder coupling to the OSG is fitted correctly and all the grub screws are tightened.