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## ALMEGA POSITIONING SYSTEM: QUICK SETUP GUIDE

### “HPV6/900, DIRECT TO FLOOR, KP” ISSUE: 5 Date: 29/06/2012

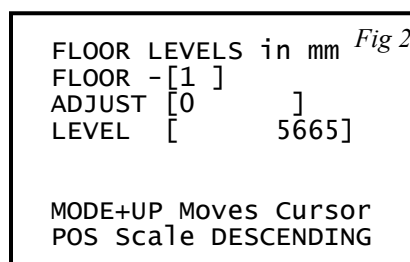
1. PRE-CHECKS (see next page). Also refer to Almega Technical Manual Supplements: **Positioning system**, and **Drive Serial Comms Magnetek HPV600/900 Drive**.
2. SETTING THE OVERRUN DISTANCE  
In general the default value of 500mm should suffice to cover the max distance the lift could ever overrun. However check this distance to ensure the max shaft position values are set correct, before using in normal operation. They can also be adjusted after the learning run.
  - 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. **A common occurrence is the Lift does not go UP on inspection.** This feature can only be selected with Almega software version V5.00 and greater, and the command to clear is only accepted on inspection. **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 LEARN RUN (i.e. manual setting)**
      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 (8). (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.
    - iv. **Setting terminal limits during Learn Run**
      1. After setting the UP/DN TERM LIMIT DISTANCES (as above) the lift will automatically set the terminal limits when the learning run has been successful.
5. 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
6. TAKE LIFT TO BOTTOM ON INSPECTION.
  - a. **If Terminal Limits are not configured or not set.**

- i. Lift will be required to run onto Down final limit at the bottom instead of Down Terminal limit, and the limit will have to be bridged to move back up (or handwind). Alternatively the user can physically take the lift to the bottom flr lev before initiating the learning run.
  - b. If PANEL TEST CONTROL is fitted**
    - i. Switch to Inspection.
    - ii. Take to bottom, and stop on the Down Terminal / Stopping Limit.
    - iii. Nudge the lift UPWARDS to release the Down Terminal / Stopping Limit. (This will ensure bottom floor level is not below the limit!)
    - iv. Switch Back to Normal.
  - c. 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**.
    - ii. Take to bottom (by bridging the Test Down connections TF and TD), and stop on the Down Terminal / Stopping Limit.
    - iii. Nudge the lift UPWARDS (by bridging the Test Up connections TF and TU) to release the Down Terminal / Stopping Limit. (This will ensure bottom floor level is not below the limit!)
    - iv. Switch Back to Normal by restoring the **TS** wire back into the terminal **TS**.
- 7. INITIATE LEARNING RUN.
  - a. Press F1 on the Almega Keypad (to show lift viewer).
  - b. Is the Door Zone Sensor input on (**Z**◆ = ON, **Z (space)** = OFF)? If not, DO NOT CONTINUE; get the Door Zone working 1<sup>st</sup>!
  - c. Make sure the lift is not on **any other service that will inhibit the learn run**, check inputs: Fire, Fire Alarm, Serv Ctrl, LW110, LW90, THERM, INSP, Priority Service, Code Blue, ESUP, Auto Srv, Shutdown. Also check brake monitoring switches operate correctly (if fitted).
  - d. Press and hold → on the Almega keypad, then press ↑, whilst still holding →.
  - e. Read the information on the LCD; press ENTER on the keypad to continue.
  - f. Wait for the lift to run to the top and back again before the learning has completed.
- 8. TRY A LIFT FLOOR TO FLOOR RUN (FROM THE CONTROL PANEL)
  - a. Before setting floor levels the response of the system needs to be checked so that the lift stops properly, else floor level settings will be inaccurate. Press **CPB** on the keypad to reset lift position.
  - b. Run the lift UP to a floor (preferably a middle floor to avoid terminal / over-travel limits) from the control panel; **do not check the physical floor level within the lift car, this is done later!**
  - c. Ensure the lift electrically decelerates to NEAR ZERO SPEED before releasing the brake. If not try adjusting the parameters in the order as below (note all can be fine tuned later):-
    - i. DRIVE A1->RESPONSE up to max of **20** (Sensitivity of Speed Regulator)
    - ii. DRIVE A1->INNER LOOP XOVER up to max of **20** (Inner Speed Loop Crossover)
  - d. Make a note of the position it stops at (i.e. 4000 at floor 2).
  - e. Run the lift DN to the same floor. Make a note of the position it stops at (i.e. 4000 at floor 2).
  - f. This should correspond to the learned floor level of position 2 ±1mm (e.g. POSITION SYSTEM SETUP->FLOOR LEVELS->FLOOR 2 = 4000).
- 9. PUT THE LIFT ON PREPARE TO TEST CONTROL (DOORS PARK OPEN).
  - a. As 5(a/b/c/d), but Press DN ARROW to display “PARK OPEN”; Press ENTER
- 10. 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:



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.

#### 11. 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.

#### 12. 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.

#### 13. 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.

#### 14. 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.

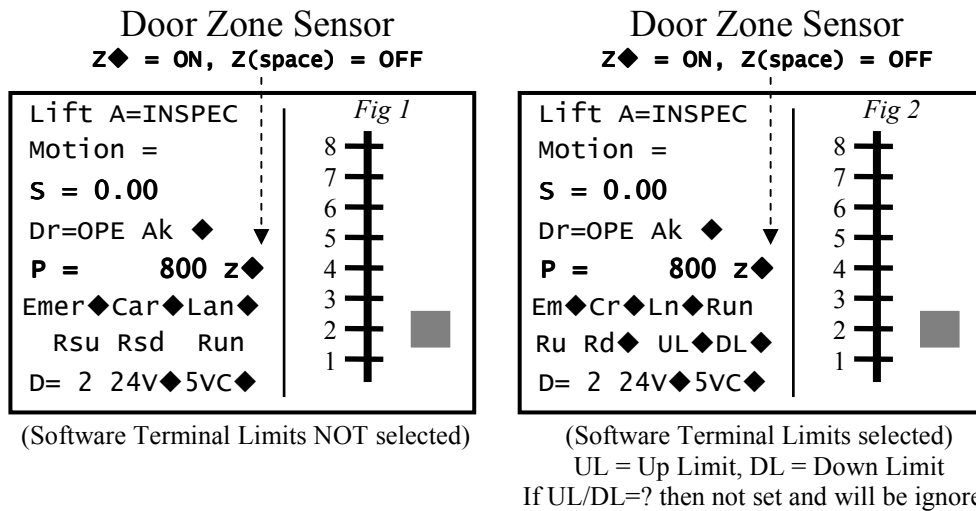
Select option MENU->POSITION SYSTEM SETUP-> RSET ENCODER POSITION ->YES to reset the absolute position of the encoder to the position of the bottom floor level.

- 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 re-cycling 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.

15. **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 Fig1/2 below:



B. Motor Wiring / Speed

- a. Ensure motor windings are wired correctly i.e. typically the high speed windings (with the lowest electrical resistance, and wired in STAR). Ensure the motor runs at the correct speed (Closed Loop) on Inspection. E.g. on the Almega LCD display "S = 0.30" is the actual measured speed, or measure using a Tachometer.

C. Almega Parameters (e.g. Contract Speed = 1.6m/s)

- a. TRAVEL SETUP (Press F3 on the Almega Keypad and Scroll Down with ↓)
  - STOP TIME = 3000 Milliseconds
  - BRAKE LIFT TIME = 200 Milliseconds
  - BRAKE RELEASE TIME = 3000 Milliseconds
  - DRIVE CONTRACT SPEED / HIGH SPEED / MEDIUM SPEED1 = 1.6 m/s
  - DRIVE LEVEL SPEED = 0.060 m/s
  - DRIVE TEST SPEED = 0.300 m/s
  - STOP ON RUN RELEASE = YES
  - PROFLE FINISH SPEED = 0.002 - 0.005 m/s
  - LEARN RUN SPEED = 0.200 m/s
- b. POSITION SYSTEM SETUP (Press MENU on the Almega Keypad and Scroll Down with ↓)
  - SPEED PROFILE CONTROL = YES
  - OVSPEED GOV DIAMETER (if fitted) = Diameter of OSG (i.e. 300mm for Atwell VG OSG)

D. Drive Parameters

- a. UTILITY U0->Basics U9->Operation = **PM for PM motors!** or CLOSED LOOP for non-PM motors
- b. DRIVE A1
  - i. RESPONSE = 10 (Sensitivity of Speed Regulator)
  - ii. INNER LOOP XOVER = 10 (Inner Speed Loop Crossover Frequency)
  - iii. ZERO SPD LEV (0.3m/s Trigger) = 0.5m/s[60%], 1m/s[30%], 1.6m/s[20%], 2m/s[15%] etc...
  - iv. ZERO SPEED TIME = 0s
- c. S-CURVES A2
  - i. S-Curve 0 values = default (Accel / Decel =0.8, All Jerk's = 0.6)
  - ii. S-Curve 1 values = user (Accel / Decel =3.999, All Jerk's = 0)
  - iii. S-Curve 2 Not Used
  - iv. S-Curve 3 All Values = 2

E. 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!
- b.
 

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

F. 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.