

CAMBRIDGE

E L E V  T I N G

RESIDENTIAL ELEVATOR SERVICE GUIDE

TECHNICAL SUPPORT:

Call or Text: 866-209-3421

Technical information web site:

cambridgeelevating.com/technicians/

Email: partsorders@cambridgeelevating.com

Refer to OLS operator manual, BES3 installation manual, BES3 service manual, electrical drawings, hoist-way layout, and CE connection drawings for details.

1XX Communications module codes

121 - Remote monitoring reset
123 - Started communicating
123_3_# - System startup
1234567 - Service mode
124 - Module software update
125 - Module self-reset timer
126 - Module self-reset
127 - Module remote reset
131 - Drop in communications
132 - Remote report request
134 - Multiple self-reset
135 - Module self-reset, timer
141 - System voltage < 24Vdc
142 - Relevelled >=5 times a day
143 - Calls were over 30 for day
145 - Communications failure
147 - Landing door left open
150 - MCP 5 day turnover
151 - MCP 6 month
152 - MCP 12 month
153 - MCP 60 month
171,172 - R&D test

3XX System will not take a call due to...

312 - Light curtain is blocked
313 - No 120Vac or 220Vac
314 - Main controller safety
315 - Car-top safety activated
316 - COP e-stop is open
317 - System is in service mode
321 - System voltage very low

323 - Battery capacity very low
325 - Battery faulty
326 - DC power fault
327 - DC power low
341 - Run timer fault
342 - Car-top relay monitor
343 - Gate safety monitor
345 - Contactor monitor
346 - Light curtain is not working
347 - Landing door contact failed
351 - Floor relay monitor
352 - Landing door cancelled call
353 - Cab gate canceled call
354 - Positioning system error
356 - Light curtain blocked
357 - Floor relay monitor
361 - Cab Gate left open for more than 10 seconds
**362 - Elevator training
364 - System failed to find a floor
**365 - Landing door safety fault
371 - MCU chip failed, replace

4XX MCU fault codes

412 - MCU data is invalid
423 - MCU external oscillator failure

5XX Startup cannot proceed due to...

512 - A landing door is open
513 - A cab gate is open
514 - Main controller safety
515 - Car-top safety activated
516 - Light curtain blocked
517 - No 120 or 220Vac
521 - Low DC voltage
523 - DC Power system failure
524 - Battery recharging
525 - Very low battery capacity
531 - MCU chip internal failure
532 - Car-top relay fault monitor
5353 - Software version error
543 - Internal fault monitor
**545 - Contactor monitor
**562 - Elevator training
**565 - Landing door safety fault

7XX Startup was suspended due to...

7 (steady) - MCU Program not running, check MCU chip
721 - Cab did not move

723 - Low up speed
724 - Low / no down speed
725 - Low down leveling speed
727 - No up movement
731 - Positioning system fault
732 - Contactor overload tripped
734 - Door zone fault
735 - Positioning sensor spacing
741 - Top cam too high or missing
751 - Floor relay fault or F4 fuse
** A hard reset is required, see service manual section K.
Customers should never be instructed on how to do a hard reset.

Setting Floor Levels

Note: System must be in automatic and able to take calls.

1. Travel to a floor using a car call button.
2. Open COP to access leveling controls.
3. Press and hold 2 enable buttons.
4. Use up and down buttons to move the car up and down until it is level with the floor. Remember to account for flooring if it is not installed yet.
5. As soon as you let go of the enable buttons, the new position will be stored in memory.
6. If the car will move up and down but not far enough, you will need to move the coded strip for that floor:
 - a. If you move the car up but the car is still too low, move the strip up one inch more than the distance you are short. Return to step 1).
 - b. If you move the car down but the car is still too high, move the strip down a little more than the distance you are short. Return to step 1).
7. Once all floors have been leveled, travel back to each floor to confirm level is correct.
Note: Unlike our previous model, you do not have to be in service mode.

Setting the Number of Stops

Note: System must be in automatic and able to take calls.

1. Restart the system, cab should travel to the top floor.
2. Gain access to the car and open the COP
3. Press and hold 2 enable buttons.
4. While still holding the 2 enable buttons, reach around immediately and hold the top floor button.
5. All the COP call buttons will flash for 15 seconds or so.
6. The DPI should change to the top floor # or symbol.
7. Let go of the enable and call buttons.
Note: Unlike our previous model, you do not have to be in service mode.

The startup routine

- Step 1- System checks to make sure that system is clear of faults
- Step 2- System checks that the standby voltage is good.
- Step 3- System checks MCM.
- Step 4- Pauses.
- Step 5- Moves up starting slow then fast
- Step 6- The batteries are tested while elevator is going up fast
- Step 7- Up fast, slowing at each regular coded strip.
- Step 8- Reaches top strip, slows down when close to top.
- Step 9- Stop at top of coded strip or at limit whichever is first.
- Step 10/20- Reaches top of Coded strip.
- Step 11/21- Down fast then slow to around middle of top strip
- Step 12/22- Up fast then slow to top limit.
- Step 13/23- Down to bottom of top floor coded strip.
- Pause at bottom of top floor cam, place top floor call.
- System normal- Up fast then slows down and stop at programed floor level. The door will not open/unlock

Audio Notifications and Warnings

- Landing Door Unlocked
 - 2-3 fast bursts for 1.2 a second
- Gate Left Open (code 361)
 - Once a second for 15 seconds
- Moving Feature
 - 1 long burst for 1 to 2 seconds
- Battery is weak
 - Once a second during travel
- Gate Monitor (code 343)
 - Steady burst for 8 seconds
 - (3 short bursts when cleared)
- Service Mode (code 317)
 - 3 steady bursts for 1 second
 -

Setup and Adjustment of the Cambridge Elevating Hydraulic Power Unit.

Adjustment #1 (BP) – Up Delay

FUNCTION- Determines the length of the delay from pump start to car movement.

PRESET- Adjust in till click is heard then 3 turns out.

OPERATION- Turn in (CW) for less delay.

SETTING- Adjust so that the delay is approximately 1 second.

Adjustment #2 (UA) – Up Acceleration

FUNCTION- Determines how long it takes the elevator to reach full speed from a stop.

PRESET- Gently turn in (CW) until stop then turn out (CCW) one and a half turns.

OPERATION- Turning in (CW) will cause the elevator to take longer to reach full speed.

SETTING- Adjust so that car takes 2 seconds to reach full speed

Adjustment #3 (UD) – Up Full Speed Deceleration.

FUNCTION- Determines how quickly the car slows down to levelling speed.

PRESET- Gently turn in (CW) until stop then turn out (CCW) one and a half turns.

OPERATION- Turning in (CW) will increase the time it takes to slow down to levelling speed from full speed.

SETTING- Adjust so that the transition to levelling speed is quick but not uncomfortable (1 to 2 seconds).

Adjustment #4 (UL) – Up Levelling Speed.

FUNCTION- Determines levelling speed in the up direction.

PRESET- Adjust until screw is flush with casing.

OPERATION- Turning in will decrease the levelling speed.

SETTING- Adjust so that the levelling speed is approximately 8-10 feet per minute (1.5 to 2 inches in per second). The best way to set this is to turn off the high-speed switch located on the main controller board.

Adjustment #5 (US) – Up Levelling Speed Deceleration

FUNCTION- Determines how quickly the elevator stops

PRESET- Turn all the way out

Adjustment #6 (DA) – Down Acceleration

Note: Adjustment #6 can be affected by adjustment #8.

FUNCTION- Determines how long it takes the elevator to reach full speed from a stop.

PRESET- Gently turn in (CW) until stop then turn out (CCW) 1 turn.

OPERATION- Turning in (CW) will cause the elevator to take longer to reach full speed.

SETTING- Car should take 2 seconds to reach full speed.

Adjustment #7 (DF) – Down full speed

FUNCTION- Determines the car speed in the down direction.

PRESET- Adjust until screw is flush with casing.

OPERATION- Turn in to reduce the down speed.

SETTING- Adjust so that car travels up & down at the same speed

Adjustment #8 (DD) – Down deceleration

Note: Adjustment #8 can affect adjustment #6

FUNCTION- Determines how quickly the elevator transitions from full speed to levelling speed and from levelling speed to a stop.

PRESET- Gently turn in (CW) until stop turn out (CCW) 3 turns

OPERATION- Turn in to increase time it takes to slow

SETTING- Adjust for a smooth stop but no coasting

Adjustment #9 (DL) – Down Levelling speed

FUNCTION- Determines the speed of the car when traveling down in levelling speed.

PRESET- Adjust until screw is flush with casing.

OPERATION- Turn in to reduce the levelling speed.

SETTING- Adjust so that the levelling speed is approximately 10 feet per minute (2 inches in per second).

How to get the elevator out of the pit

Turn the INSTALLATION switch on and short top 2 pins of the 3 pin REMOTE CONTROL connector

Victory Door Operator

Programing the Door Width Settings

This can resolve many issues related to opening and closing speeds and ensures the standby current draw in low.

- Locate the door operator circuit board
- Power down the operator board by removing JP1 (L1-L2)
- Locate the JP2 jumper (near JP4)
- Install the JP2 jumper across the two pins
- Power up the board by reinstalling JP1 (L1-L2)
- The door should open fully then close fully, if it does not do this check the following
- The gate closed contact is connected to F1, F2 connector at the board and the FC led is on when the door is closed.
- The gate open sensor is connected to CPA terminals and the FA light is on when the operator is fully open.
- The encoder cable must be installed at ENC.M.
- Power down by removing JP1 (L1-L2)
- Return the JP2 jumper to one pin
- Power up by reinstalling JP1 (L1-L2)
- Test the door operator

How to Test the Batteries:

1. Connect the batteries to the system.
2. Ensure all disconnects are on.
3. Confirm that the battery fuse has continuity.
4. Install a meter across the set of batteries (on the 200Vdc scale).
5. Measure the voltage while running the elevator up, either in service mode or in auto.
6. If the voltage drops below 25Vdc but stays above 22Vdc the batteries are low or old, they may charge up if left to charge for a few hours, but should be replaced if they are over 3 years old or show signs of corrosion or swelling.
7. If the voltage drops below 22Vdc the batteries may not return to full charge.
8. If the voltage stays above 25Vdc the batteries are good, you may still wish to change batteries that are over 3 years old as they may fail before your next Preventive maintenance visit.

How to Test the BES3 Battery Charging System:

1. Confirm 220Vac power is on (220Vac relay should be on).
2. Disconnect red and black battery terminals, insert meter leads into connectors (meter should be on 200Vdc scale).
3. Read voltage on multi-meter:
 - a. If voltage is between 26.5Vdc and 27.3Vdc the charging system is working properly.
 - b. If no voltage is present the 24Vdc power supply, and the wiring connection to and from it are suspect.
 - c. If the voltage is more than 27.3Vdc or less than 26.9Vdc, the charger should be adjusted to 27.2Vdc.