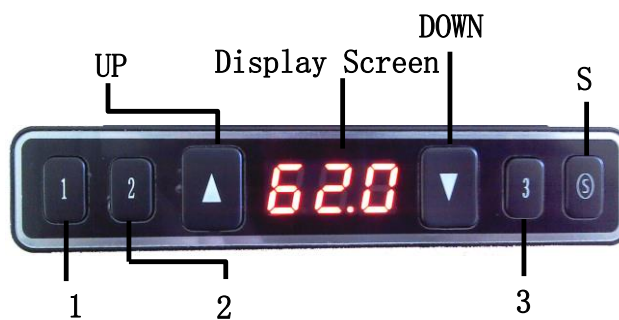


SWISH HEIGHT ADJUSTABLE SYSTEM

Digital Handset Operation for Straight Workstations

Please read these instructions before operating.

1. Digital Touchpad



2. Initialisation Procedure



The initialisation procedure must be completed after the system has been installed, before its first run and after the replacement of any parts.

Step	Operation	Motion
1	Press and hold ▲&▼ simultaneously for minimum 3 seconds	Legs begin to move down at half the speed of normal operation
2	Keep pressing ▲&▼	Legs move down to the lowest position and rebound 2-5 mm, then stop
3	Release ▲&▼ together	Initialisation is completed



3. Up & Down Controls

Step	Operation	Motion
1	Press and hold ▲	Legs move up
2	Release ▲	Legs stop
3	Press and hold ▼	Legs move down
4	Release ▼	Legs stop

4. Setting the Memory Positions

Step	Operation	Motion
1	Press and hold ▲ or ▼ to the desired position, then release	Run the legs to the desired height
2	Press “S” button, then press button 1 or 2 or 3 within next 3 seconds	Position 1 or 2 or 3 is saved

5. Move to the Memorized Positions

Step	Operation	Motion
1	Press and hold buttons 1, 2 or 3	Legs move to the corresponding saved height

6. Switching Between Display Unit Formats

Step	Operation	Motion
1	Press and hold “S” button, then press and hold ▼ for about 3 seconds	The height information will switched between centimeters and inches
2	Release the buttons	Step completed



In inch format, the minimum height variation as the legs move up or down is 0.5 inches, while in centimeter format it is 1 centimeter

7. Verify the display switch data to table height

Step	Operation	Motion
1	Set the table at any height, recommended at the bottom position	Measure the table actual height and write down the number in inches or in centimeters
2	Press and hold "S" button, then press and hold ▲ for about 3 seconds	The first number is flashing on the screen
3	Release the buttons, then press ▲ or ▼ to change the first number	The first number is being increased or decreased to the first number you measured
4	Click "S" button	The second number is flashing on the screen
5	Click ▲ or ▼ to change the number	The second number is being increased or decreased to the second number you measured
6	Click "S" button	The third number is flashing on the screen
7	Click ▲ or ▼ to change the number	The third number is being increased or decreased to the third number you measured
8	Click "S" button	Step completed



Check whether the format is displayed in inches or in centimeters, switch to your preferred format (refer to step 6) and match the actual measurement. In inch format, the minimum adjustable height is 0.5 inches while in centimeter format, it is 1 centimeter.

8. Lock the Stroke

Step	Operation	Motion
1	Press and hold ▲ or ▼, then release	Run the legs to the position you want the table surface to be
2	Press and hold "S" button, then press and hold 1 for about 3 seconds	Letter "L" is displayed on the screen. That means the position is locked at the lowest position that the table can be moved to
3	Release the buttons	Step completed



1. Legs aren't able to run below the locked position
2. If the memory position(s) are/is below the locked position, the memory position(s) will be lost even after the table is unlocked, you need to follow "Setting the Memory Positions" (step 4) again to reset these memory positions

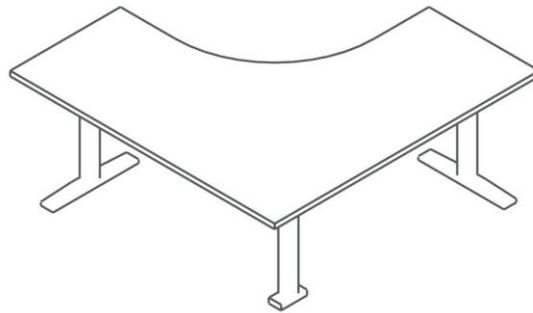
9. Unlock the Stroke

Step	Operation	Motion
1	Press and hold "S" button, then press and hold 2 for about 3 seconds	Letter "C" is displayed on the screen, the table is unlocked and can be operated in full range
2	Release the buttons	Step completed

TROUBLE SHOOTING GUIDE

Fault Phenomenon	Handling
After connecting the power and pressing ▼ or ▲, the legs have no response...	Re-initialise the table;
	Check if the connection is correct or not;
	Please contact your supplier
After connecting the power, pressing and holding ▼ and ▲, the legs have no response...	Check if the connection is correct or not;
	Please contact your supplier.
The legs are rising slowly...	Check if the input power is correct or not; Please contact your supplier
The legs don't move according to your operation...	Please contact your supplier
Only one leg moves while the other leg does not move...	Check if the connection is correct or not;
	Please contact your supplier
Legs only move down and do not move up...	Re-initialise the table;
	Please contact your supplier.
The table drops down...	Check that the weight of the load on the table does not exceeds 75kg;
	Please contact your supplier.
The table goes into initialisation frequently...	Check that the weight of the load on the table exceeds 75KG or not;
	Check the noise of the motor;
	Please contact with your supplier.

Digital Handset Operation for 90° and 120° Workstations



Start of operation

After mounting the controller and the control panels, making all electrical connections and making sure that the right parameter set is loaded to the controller, the table can be operated.

On initial start-up, the table makes a reference run to acquire the reference position. To do so the “up” or “down” key must be pressed until the table reaches the reference position (normally the lowest point or the position of a limit switch) and further until the table moves to the lowest programmed position (this may be about 25mm or 1” higher than the lowest position).

After the reference has been established, the table is ready for normal operation. By pushing the “up” or the “down” key the table can be moved between the upper and the lower positions defined in the parameter set in the controller specific for this table.

Current based collision detection

As a standard all controllers are equipped with a simple, current based collision detection. This collision detection must be activated through the parameter set. Also to achieve a satisfactory functioning of this feature, parameters specific to the table must be defined and entered.

When activated, the current based collision detection will stop the movement of the table as soon as the tabletop hits an obstacle. After stopping, the tabletop will move in the opposite direction by the distance specified in the parameter set. After that the “up” or “down” key have to be pressed again to move the tabletop.

Please note that the sensitivity of the current based collision detection on down ward movements is reduced drastically if the table is loaded with some weight!

Should the performance of the current based collision detection not be satisfactory, the use of the GyroSense Collision detection system is recommended.



GyroSense based collision detection

The Laing GyroSense Systems provides collision detection between a table and an obstacle. To enable that, controllers ordered with this option are equipped with a very sensitive sensor what will sense even the smallest disturbance of the table upward or downward movement.



This system ensures a reliable detection of a collision as long as the collision leads to an at least very small change in position of the table top.

To sense such a change in position the GyroSense equipped Controller must be mounted to the tabletop. Placing

the controller in the crossbar will not work!

Control through control panels


All Control panels

	Table will move upward	Keep the key pushed until the desired position is reached
	Table will move downward	Keep the key pushed until the desired position is reached

Control panels with memory keys

By using the memory keys, the user can assign individual heights to these keys that can then be recalled when the memory key is pressed.

Whether memory positions are stored in a new controller depends on the parameter set entered into the controller when configured at the table supplier.

	Recall previously stored memory positions	Keep the appropriate memory key pushed until the table stops at the stored position
--	---	---

Control panels with height indication

Control panels with height indication show the actual height of the table top in cm or Inches depending on the configuration.

Configuration of the controller through the “LD” control panels (control panels with height indication)

Store memory positions with the “LD” control panels



- Move the table to the desired height by using the “up” or “down” keys
- Press the “up” arrow key 4 times quickly one after another



- Reaching the program mode will be confirmed by a sound
- The display will now show “P01”



- If you want to store the memory position one, press the “Memory one” key shortly to confirm the storage of the present position into the memory key one.

- If you want to store the memory position two, press the “up” or “down” arrow key until the display shows “P02”, then press the “Memory one” key shortly to confirm the storage of the present position into the memory key two.

- If you want to store the memory position three, press the “up” or “down” arrow key until the display shows “P03”, then press the “Memory one” key shortly to confirm the storage of the present position into the memory key three.
- If you want to store the memory position four, press the “up” or “down” arrow key until the display shows “P04”, then press the “Memory one” key shortly to confirm the storage of the present position into the memory key four.
- Successful position saving will be confirmed by the number of sounds that correspond to the selected memory key number
- From now on the height stored in the memory position can be adjusted by pressing and holding down the selected memory key until the table stops at the height stored
- By pressing the “Memory one” key the control panel goes back to normal mode and will indicate the actual height.

User height limit adjustment by the “LD” control panels

Adjust upper and lower limit

Should windowsills or pedestals limit the possible movement of the table then an upper and lower limit can be defined as follows



- Move the tabletop by using the arrow keys to the minimum or maximum desired height
- Press the “up” arrow key 4 times quickly one after another
- Reaching the program mode will be confirmed by a sound
- The display will now show P01



- Press the “up” or “down” arrow key until the display shows:
 - P06 for adjustment of the lower height limit, the table must be at the minimum position
 - P07 for adjustment of the upper height limit, the table must be at the maximum position



- Press the “memory one” key shortly to store the selected limit



- The successful storage of the user position will be confirmed by the sound shown



- The top and lower positions must be kept at a minimum distance from one another so that the table can still move after the new limits have been adjusted. This minimum distance is defined in the parameter set entered into the controller. If the distance is lower, the position will not be stored. This will be indicated by the sound shown



- If this is the case the upper limit must be moved upward or the lower limit must be move downward until the distance is bigger than the minimum distance

Delete user height limits



- Move the table top by use of the arrow keys to the minimum or maximum height. (Keep the “up” or the “down” key pressed until the table stops moving)
- Press the “up” arrow key 4 times quickly one after another
- Reaching the program mode will be confirmed by a sound
- The display will now show P01



- Press the “up” or “down” arrow key until the display shows:
 - P06 for deletion of the lower height limit select, the table must be at the lowest position
 - P07 for deletion of the upper height limit select, the table must be at the highest position
- Press the “memory one” key shortly to confirm the deletion
- The sound shown will confirm the deletion

Change the sensitivity of the collision detection by the “LD” control panels

Overtime the movement of the table may change due to wear or change of the lubrication properties. This may result in a false activation of the collision detection. In this case, the sensitivity of the collision detection can be adjusted as follows



- Press the “up” arrow key 4 times quickly one after another
- Reaching the program mode will be confirmed by a sound



- The display will now show P01
- Press the “up” or “down” arrow key until the display shows P08



- Press the “memory one” key shortly to enter the setting mode
- The display now will show the actual sensitivity level
- Press the “up” or “down” arrow key to select the desired sensitivity of the collision detection:
 - 1: The collision detection will be deactivated
 - 2: Default setting, highest sensitivity
 - 3: Medium sensitivity
 - 4: lowest sensitivity



- Press the “memory one” key shortly to confirm the selection

Initiate a reference run by the “LD” control panels

Should the table show the wrong height or one leg is higher than the other, a reference run must be initiated by the following action



- Press the “up” arrow key 4 times quickly one after another
- Reaching the program mode will be confirmed by a sound



- The display will now show P01
- Press the “up” or “down” arrow key until the display shows P09



- Press the “memory one” key shortly to enter the reference mode. The display now will show “- - -”
- Now the “up” or “down” key must be held down until the table reaches its reference position and then moves back to the lower position. If the reference is established the display will show the actual height. Now the reference is recalibrated, the table should be levelled and the height indication should be correct.

Change height indication from cm to inch by the “LD” control panels

The height can be indicated in cm or inch. The factory setting depends on the parameter set loaded into the controller. To change the indication, proceed as follows:



- Press the “up” arrow key 4 times quickly one after another
- Reaching the program mode will be confirmed by a sound



- The display will now show P01
- Press the “up” or “down” arrow key until the display shows P10



- Press the “memory one” key shortly to enter the setting mode.
- The display now will show the actual setting
 - 0: Metric, indication in cm
 - 1: Imperial, indication in inch



- Press the “up” or “down” arrow key to select the desired setting
- Press the “memory one” key shortly to confirm the selection

Enter service menu by the “LD” control panel

For service purposes, certain values and settings can be indicated in the display. The service menu can be entered as follows:



- Press the “up” arrow key 4 times quickly one after another
- Reaching the program mode will be confirmed by a sound



- The display will now show P01
- Press the “up” or “down” arrow key until the display shows P11



- Press the “memory one” key shortly to enter the menu.
- The display now will show P50



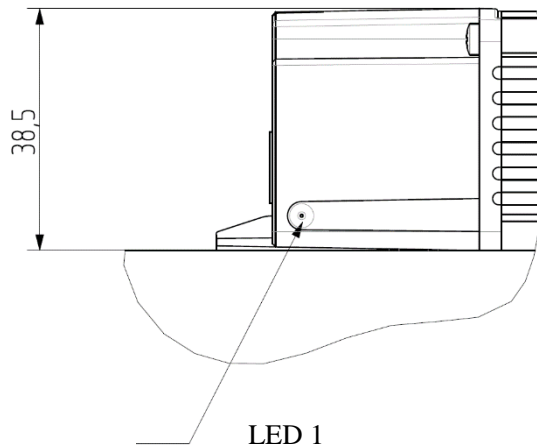
- Press the “up” or “down” arrow key to select the desired menu item



- Once the desired menu item is reached press the “memory one” key shortly, now the value for the selected item will be shown

- To leave the menu item shortly press the “memory two” key
- Menu items:
 - P50: Motor count, when selected, the display shows the number of motors the controller is configured for
 - P51: GyroSense enabled: “1” GyroSense disabled: “0”
 - P55: Set lower factory height limit
 - P56: Set upper factory height limit
 - P57: Shift height indication

Status and failure mode indicated by the LED



The LED on the controller indicates the following

Indicated code	Meaning	Failure solution
Constantly on	Controller is switched on and/or motors are running	If LED is not on, check the power cable
Constantly blinking	Controller is in reference mode	Press up or down button to perform a reference run. Keep button pressed until the reference run is finished
Short and long blinks	The LED shows a sequence of long and short signals. This indicates the failure mode (F1 to F17) as described below. E.g. long short short short means Failure mode 1	If a control panel with digital height adjustment is connected, read out the failure code. In case of a control panel without digital height adjustment read out the combination of long and short signals and refer to the failure modes described below

Menu codes indicated by the “LD” control panels

The following menu codes will be shown by the control panels with height indication.

Indicated menu	Meaning	Explanation
P1	Store memory position 1	The memory position one for the control panel memory key one can be stored
P2	Store memory position 2	The memory position two for the control panel memory key two can be stored
P3	Store memory position 3	The memory position three for the control panel memory key three can be stored
P4	Store memory position 4	The memory position four for the control panel memory key four can be stored
P5	Memory key handling	Users can select if the memory key must be kept pressed until the memory position is reached or if a short key press is sufficient
P6	Set user lower limit	Users can set individual lower limits for their controller to avoid e.g. collision with a drawer container below the table
P7	Set user upper limit	Users can set individual upper limits for their controller to avoid e.g. collision with window board
P8	Sensitivity level for the collision detection	For the current based, as well as the GyroSense based collision detection in this menu item the sensitivity can be adjusted. Also, the collision detection can be deactivated

P9	Initiate reference mode	If the table is out of level or the height is not indicated correctly, a reference run can be initiated in this menu item
P10	Change from metric to imperial units	In this menu item the indicated units can be changed from metric to imperial
P11	Enter service menu	This menu item leads to the service menu
P50	Motor count	Number of motors selected
P51	GyroSense	enabled/disabled
P55	Lower factory limit	Adjust lower factory limit
P56	Upper factory limit	Adjust upper factory limit
P57	Height shift	Adjust a shift in the indicated height

Failure codes indicated by the control panels

The following failure indication will be shown by the control panels with height indication. If control panels without height indication are used, refer to the blinking of the LED on the controller to determine the failure mode.

Indicated Failure code LED blinking	Failure	Failure solution
con	Communication error	There is no communication between the controller and the control panel. Check the electrical connection
- - -	Reference mode	The controller entered reference mode, a reference run must be performed
F1 LED blinking: long short short short	EEPROM initialization error	Reset error by pressing any key. If the Error remains restart system by unplugging the power cable of the controller and plugging it in again after 10 seconds. If the error reoccurs the controller may be damaged, contact the supplier
F2 LED blinking: short long short short	EEPROM write error	Reset error by pressing any key. If the Error remains restart system by unplugging the power cable of the controller and plugging it in again after 10 seconds. If the error reoccurs the controller may be damaged, contact the supplier
F3 LED blinking: long long short short	EEPROM Read error	Reset error by pressing any key. If the Error remains, restart system by unplugging the power cable of the controller and plugging it in again after 10 seconds. If the error reoccurs, the controller may be damaged, contact the supplier

F4 LED blinking: short short long short	EEPROM inconsistency error	Reset error by pressing any key. If the Error remains, restart system by unplugging the power cable of the controller and plugging it in again after 10 seconds. If the error reoccurs, the controller may be damaged, contact the supplier
F5 LED blinking: long short long short	Collision detected through GyroSense or current based collision detection	Reset error by pressing any key. Should error reoccur, decrease sensitivity level of the collision detection through the control panel menu system
F6 LED blinking: short long long short	Motor current reached the overcurrent stop level	Reduce load on the table. Reset error by pressing any key.
F7 LED blinking: long long long short	Motor current reached the error overcurrent level.	Reduce load on the table Reset error by pressing any key.
F8 LED blinking: short short short long	Motor current reached the configured fault overcurrent level.	Try to reduce load on the table or ensure a smoother travel path of the table mechanism Reset error by pressing any key.
F9 LED blinking: long short short long	Maximum allowed energy amount (Over temperature) entered into the motors.	Wait for some time, to allow the motors to cool down. The Over temperature decrease mechanism allows partial usage of the system after a short time, however for a complete cool back, around 10 minutes are required Reset error by pressing any key.
F10 LED blinking: short long short long	Maximum allowed energy amount (Over temperature) supplied by the controller	Wait for some time, to allow the controller to cool down. The Over temperature decrease mechanism allows partial usage of the system after a short time, however for a complete cool back, around 10 minutes are required Reset error by pressing any key.
F11 LED blinking: long long short long	Maximum temperature level of the controller main power supply reached	Wait for some time to allow the controller to cool down. Reset error by pressing any key.
F12 LED blinking: short short long long	Maximum temperature level of the controller's motor drivers reached	Wait for some time to allow the controller to cool down. Reset error by pressing any key.

F13 LED blinking: long short long long	Maximum temperature level of the third motor driver reached.	Wait for some time to allow the controller to cool down. Reset error by pressing any key.
F14 LED blinking: short long long long	The maximum height difference between the table legs has been reached	The system enters reference mode automatically. Execute reference run by holding down up or down key of the control panel until reference run is done.
F15 LED blinking: long long long long	Motor blocked or so overloaded that it cannot speed up	Reset error by pressing any key. Try to reduce load on the table or ensure a smoother travel path of the table mechanism
F16 LED blinking: short short short short long	Number of motors connected to the controller does not correspond to the number of motors the controller was configured for	Check that all motors are properly connected to the controller. Reset error by pressing any key.
F17 LED blinking: long short short short long	Controller overloaded	Reset error by pressing any key. If the Error remains, restart system by unplugging the power cable of the controller and plugging it in again after 10 seconds. If the error reoccurs, the controller may be damaged, contact the supplier