REPAIR & REPLACEMENT INSTRUCTIONS ■

Genesis® Desking
Lift System

January 2019

Before servicing, please carefully read these instructions and keep for future reference.

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GLOSSARY

Components
- <u>Desk Legs</u> - The supporting and lifting columns, responsible for moving the working load of the application up and down. Finished with powder-coat paint.

- <u>Control Box (CBD6S)</u> – Is the computer and power supply to the leg lift system.

- <u>Control Switch</u> – The user interface. Depending on the model, it is used to activate the application, set memory positions, display the height, display error codes and give reminders to the user.

- <u>Motor Cable</u> – Transmits low voltage power (18-39 VDC) from the control box to the desk legs, and also transmits Piezo signals when available from the desk leg.

- <u>Power Cord</u> – Transmits high voltage power (120 VAC in US and Canada) from the building source power to the control box.

Other
- <u>Initialize</u> – Procedure to reset all desk legs to the fully retracted position so that the control box knows where the legs are positioned.

- <u>Reference</u> – Any group of desk legs that run in parallel when an "up" or "down" command is sent to the control box.

- <u>Duty Cycle</u> - A ratio of "on time" to "off time" of a system that will prevent overheating of the electronics.

- <u>Mechanical Stop</u> - A condition in which motor rotation is prevented.

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IMPORTANT SAFEGUARDS

When using any motorized electrical device, basic precautions should always be followed, including the following:

- This system of components is designed to make office desks height-adjustable. Do not use for anything other than its intended purpose.

- Inspect the system for damage from shipping before installing or connecting to power.

- Do not attempt to disassemble the control box for any reason. Repair must be done by authorized service personnel only.

- The final location of the desk must be on level, solid flooring.

- Do not locate or operate the system where it is humid, dusty, poorly ventilated, exposed to vibrations or exposed to extreme temperature changes.

- Locate the desk at least 2 inches (50mm) away from any walls, from under any cabinet, or anything that can interfere with the movement of the desk.

- Do not use outdoors.

- Make certain all cables and power cords are able to move freely and do not become stretched or pinched during full movement of the table.

- Do not insert anything into the control box as that may create a risk of fire or electric shock.

- Close supervision is necessary when any electrically powered device is used near children.

- Ensure that desk loads are evenly distributed, and that load specifications are not exceeded.

- Make sure frequency of use does not exceed the specified duty cycle.

- Be certain to connect the power cord to a power outlet that meets specified voltage and current requirements.

- When the unit is plugged in, it is on and fully functional. For complete electrical disconnection, pull the power cord out of the power outlet.

- Do not use the desk to lift, move or support people.

- To prevent overheating, be certain the control box and motors are not covered.

- Do not disconnect the control switch or motors from the control box while the system is connected to power.

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GENERAL INFORMATION

- The controller, cables and switch do not require regular maintenance.

- Most service issues that may arise can be addressed by the customer with the help of the "Standard Troubleshooting Procedures" on page 4.

- A loss of power during the operation of the desk will have no impact on its operation once power has been restored.

- If one of the switches, motors or cables fail, or if the connections between these components become disengaged, the <u>desk</u> will not move up or down.

- Conditions when the control box will stop during normal operation are:
  - <u>Current Limit</u> - when the current delivered to the motor exceeds a specific limit.

  - <u>Overheating</u> - when the desk is cycled up and down repeatedly and exceeds its duty cycle.

  - <u>Timeout</u> - when the control box detects that the motor is not moving at the programmed speed. When the conditions which caused the control box to stop no longer exist, the control box will resume normal operation.

Initialization
Initializing a control box will bring the box to a state that it was during initial manufacture of the table assembly. A box that has been initialized expects the table to be in its lowest position (against hard stops at the bottom of the table stroke).

Field Service is Required for the Following:
- Faulty Motor/Faulty Cable
- Faulty Control Switch

Components Necessary for Field Services:
- Test Control Boxes (with the correct program)
- Test Motors/Cables
- Test Switches
- Voltmeter
- Screwdrivers

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TROUBLESHOOTING

Procedure 1: Initialize the Control Box (Reset):

Note: This is commonly the solution when a desk will move down but not up. This is how the system is programmed to behave when a control box requires initialization.

1. Hold the "down" button on control switch to ensure the desk is retracted to its lower limit (whether it's the fully retracted hard stop, or a configured lower limit).

2. Briefly release the "down" button.

3. Press and hold the "down" button again for 5 seconds, wait until all desk movement has stopped, then release.

    a. If initialization is successful, you should see a slight up/down "handshake" movement of the desk legs.

    b. If you have a deluxe switch with a digital display, you should see the E01 error code being displayed during this part of the procedure.

Procedure 2: Check All Cable Connections:

1. Check that the power cord is connected to both the control box and the power outlet.

2. Check that all motor cables are connected to both the control box and the desk leg.

    a. If table is utilizing a standard control box configuration, motor cables must be connected in channels 1 and 2, or channels 1, 2 and 3 for a 3-leg desk. Cables can't be connected in channels 1 and 3 or 2 and 3 unless there is a configuration on the control box specifying this arrangement.

3. Check that the control switch cable is connected to the control box in either port A1 or A2 (it does not matter which of the two ports is used)

Procedure 3: Check for Obstructions:

1. Check under, above and on the sides of the desk for any obstructions that could prevent movement in either direction.

Procedure 4: Check for Faulty Components with Error Codes (Deluxe Switch with Digital Display)

Note: For the trouble shooting procedure to follow, one would need to have an extra, known good version of the components listed in the "Glossary-Components" section at the beginning of this document. It is not necessary to have the exact same item numbers as those that are being evaluated, unless one is replacing a single desk leg. However, it is possible to do some troubleshooting with a different type of desk leg.

Note: Check the Error Code section on page 10, for assistance. The code should read E##. Some error codes are channel-specific which can help pinpoint the problem.

Symptom	Procedure
Desk moves down but not up.	1. Initialize the control box (Procedure 1).
Desk is unresponsive (no power to the deluxe switch display when a button is pressed).	**Note:** After each step, if the digital display activates, initialize the system. 1. Check power cord connection. Test power outlet using another device (lamp, phone charger, etc.) 2. Plug in a new deluxe switch with digital display. 3. Connect all existing cables to a new control box.

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Symptom	Procedure
Desk is powered, but will not initialize.	1. Try pressing and releasing the "down" button a few times before pressing and holding for five seconds. 2. Take note if the control box has a special configuration. If the desk is programmed with a lower stroke limit, to avoid collision with something like a filing cabinet, it is possible that it has a custom, longer Forced Initialization Time. This is the time required to hold the down button before initialization begins. Sometimes this is ten seconds or longer. 3. If you have a standard control box without a special configuration (i.e. "Plug & Play"), try to initialize each leg in Channel 1 by itself, with nothing else plugged into the motor channels on the control box. Swap the motor cables so that a different motor cable is used to initialize Channel 1 by itself. The problem could be a faulty desk leg or a faulty motor cable.
Channel-specific error (Ex: E41 – Channel 1 overload) – Everything except Piezo errors (E59-E63).	1. Swap the motor cable connections at the control box (Motor cable #1 from channel 1 to 2, motor cable #2 from channel 2 to 1). If error code remains E41 on the digital display, there could be a problem with the application (load or obstruction on one side) or a bad control box. If the error changes to E42, reference Procedure 4, symptom "Desk is powered, but will not initialize". 2. Swap the motor cable connections at the desk legs, so that the leg that was originally connected to Channel 1 is back in Channel 1, but with the motor cable that was originally connected to Channel 2. If the error code remains E42, it is most likely a bad motor cable, now connected to Channel 2. If the error code goes back to E41, it is most likely a bad desk leg, now connected to Channel 1.
Desk is uneven.	1. Initialize the control box. If both legs begin to run down, complete the initialization. If only one leg moves, stop and move to step 2. 2. Check motor cable connections. Check to ensure motor cables are able to move freely and do not become stretched or pinched during movement. With a standard control box (i.e. "Plug & Play"), it's possible that only one leg is connected, and connected to Channel 1. In this case, it will initialize and run Channel 1 only. If there is only one leg but it's connected to Channel 2, it will not initialize. 3. If a motor cable was disconnected, try initializing again. 4. If unsuccessful, connect the desk leg from Channel 2 into Channel 1, with nothing in Channel 2, and initialize. 5. Try initializing the same leg that's in Channel 1, but with a different motor cable. If it still won't initialize, replace the desk leg.

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TROUBLESHOOTING (cont.)

Procedure 5: Check for Faulty Components without Error Codes (Standard Switch)

Note: For the trouble shooting procedure to follow, one would need to have an extra, known good version of the components listed in the "Glossary Components" section at the beginning of this document. It is not necessary to have the exact same item numbers as those that are being evaluated, unless one is replacing a single desk leg. However, it's possible to do some troubleshooting with a different type of desk leg.

Symptom	Procedure
Desk moves down but not up.	1. Initialize the control box (Procedure 1).
Desk will not initialize. Desk will not complete the full range of motion.	**Note:** After each step, attempt to initialize. 1. Check power cord connection. Test power outlet using another device (lamp, phone charger, etc.) 2. Plug in a new Standard Switch. 3. Connect all existing cables to a new control box. 4. Try pressing and releasing the down button a few times before pressing and holding for five seconds. 5. Take note if the control box has a special configuration. If the desk is programmed with a lower stroke limit, to avoid collision with something like a filing cabinet, it is possible it has a custom, longer Forced Initialization Time. This is the time required to hold the down button before initialization begins. Sometimes this is ten seconds or longer. 6. If you have a standard control box without a special configuration (i.e. "Plug & Play"), try to initialize each leg in Channel 1 by itself, with nothing else plugged into the motor channels on the control box. Swap the motor cables so that a different motor cable is used to initialize Channel 1 by itself. The problem could be a faulty desk leg or a faulty motor cable.
Desk is uneven.	1. Initialize the control box. If both legs begin to run down, complete the initialization. If only one leg moves, stop and move to step 2. 2. Check motor cable connections. Check to ensure motor cables are able to move freely and do not become stretched or pinched during movement. With a standard control box (i.e. "Plug & Play"), it's possible that only one leg is connected, and connected to Channel 1. In this case, it will initialize and run Channel 1 only. If there is only one leg but it's connected to Channel 2, it will not initialize. 3. If a motor cable was disconnected, try initializing again. 4. If unsuccessful, connect the desk leg from Channel 2 into Channel 1, with nothing in Channel 2, and initialize. 5. Try initializing the same leg that's in Channel 1, but with a different motor cable. If it still won't initialize, replace the desk leg.

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CONTROL BOX INFORMATION

There are many clever procedures, checks and measurements performed in the control box. Below is a brief description of what the control box is trying to accomplish while it is activating an application:

Safe Activation of the Application
- Parallel, even movement of all desk legs in the application is critical.

  - The control box does not directly know the position of each desk leg. Instead, the position of each leg is constantly calculated via Hall pulses from each motor. The legs on a single reference are not allowed to be more than +/- 5 Hall pulses out of sync. For a standard DL, this amounts to +/- 0.55 mm.

  - Motor cable disconnections are also detected as errors.

- If Piezo technology is present in the desk leg, the control box monitors for Piezo "collision" signals from each channel. When a Piezo signal is sensed, movement is immediately stopped and, if there is room, the system is run in the opposite direction a small distance.

- Anytime the control sees an incomplete signal, or more than one signal (multiple keys pressed, multiple desk panels activated at the same time), an error is determined and no movement is allowed at that moment. This is to prevent an action of movement that is not intended by the user.

Protection from Equipment Damage
- Internal temperature of the control box is monitored.

- Maximum current draw for each motor channel, as well as the system as a whole, is measured. When the current exceeds an allowable limit, an error is presented.

ERROR CODES

If utilizing a Deluxe Switch, the digital display will produce an error code that should read E##. Some error codes are channel-specific which can help pinpoint the problem.

Error Code	Name	Description	Potential Cause	Troubleshooting
E01	Position Lost	The desk has an unknown position and needs to be initialized.	• Position error. • New desk Leg added.	• Initialize the system.
E02	General Overload Up	Overload in upward direction has occurred.		
E03	General Overload Down	Overload in downward direction has occurred.		
E08	Watchdog	Indicate that software failed to kick watchdog.	• Program fault.	• Unplug power cord for 15 sec. • Initialize the system. • Replace control box.
E09	LIN collision	Collisions detected on the LIN bus.	• Button pressed on two or more connected control switches simultaneously. • Multiple LINBUS devices activated simultaneously.	• Check if another control switch is connected and being activated. • Unplug all but one control switch and test system.

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ERROR CODES (cont.)

Error Code	Name	Description	Potential Cause	Troubleshooting
E10	Power fail	Power fail happened, or power regulator adjusted below 10%.	• Power cord pulled during driving. • Internal fault. • Only one battery for a three- or four-channel system. • "E10 is a power fail, voltage on power supply drops below a certain limit, power removed."	• Check power cord is not caught, and is allowed to freely travel. • Use strain-relief loop built into control box. • Use a 2nd battery; charge batteries.
E11	Channel mismatch	Change in number of actuators since initialization.	• Disconnection. • Desk leg added.	• Check motor cable connections and integrity. • Change motor cable or desk leg. • Initialize the system.
E12	Position error	One channel have position different than others.	• Too much back drive occurred.	• Move table to fully retracted position. • Initialize system.
E13	Short circuit	Short circuit detected during operation.	• Squeezed motor cable. • Short in motor.	• Check motor cable connections. • Isolate and replace motor cable. • Isolate and replace desk leg.
E15	Power limit	System has reached its power limitation.	• Power cord pulled during driving. • Internal fault. • Many times will see this alongside E10. • "E15 is when power regulator has adjusted speed down on actuators without any significant current draw, usually caused by power supply dropping."	• Check power cord is not caught, and is allowed to freely travel. • Use strain-relief loop built into control box.
E16	Key Error	Illegal keys pressed (handled internally in DP1C).	• Hitting multiple buttons simultaneously.	• Check control switch.
E17	Safety missing	LIN bus unit does not support safety feature.	• DP1C/DPF1C does not have up-to-date software.	• Try DP with more recent software version (version printed on label).
E18	Missing Initialization plug	A special service tool is required to change number of channels to the system.	• [BASELIFT Only]. • Service tool missing from BASELIFT system when initializing.	

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ERROR CODES (cont.)

Error Code	Name	Description	Potential Cause	Troubleshooting
E23	Ch1 missing	Channel 1 is detected missing.	• Disconnection. • Faulty motor cable. • Faulty motor in leg.	• Check motor cable connections and integrity. • Change motor cable or desk leg. • Initialize the system.
E24	Ch2 missing	Channel 2 is detected missing.	• Disconnection. • Faulty motor cable. • Faulty motor in leg.	• Check motor cable connections and integrity. • Change motor cable or desk leg. • Initialize the system.
E25	Ch3 missing	Channel 3 is detected missing.	• Disconnection. • Faulty motor cable. • Faulty motor in leg.	• Check motor cable connections and integrity. • Change motor cable or desk leg. • Initialize the system.
E26	Ch4 missing	Channel 4 is detected missing.	• Disconnection. • Faulty motor cable. • Faulty motor in leg.	• Check motor cable connections and integrity. • Change motor cable or desk leg. • Initialize the system.
E29	Ch1 type	Channel 1 is not same type as when initialized.	• Change in desk leg type. • Loose wire inside motor.	• Check desk leg type. • Change desk leg. • Initialize the system.
E30	Ch2 type	Channel 2 is not same type as when initialized or not same type as channel 1.	• Change in desk leg type. • Loose wire inside motor.	• Check desk leg type. • Change desk leg. • Initialize the system.
E31	Ch3 type	Channel 3 is not same type as when initialized or not same type as channel 1.	• Change in desk leg type. • Loose wire inside motor.	• Check desk leg type. • Change desk leg. • Initialize the system.
E32	Ch4 type	Channel 4 is not same type as when initialized or not same type as channel 1.	• Change in desk leg type. • Loose wire inside motor.	• Check desk leg type. • Change desk leg. • Initialize the system.
E35	Ch1 pulse fail	Channel 1 had to many pulse errors.	• Loose/faulty cable. • Hall sensor PCB.	• Check motor cable connections and integrity. • Initialize the system. • Change desk leg.

ERROR CODES (cont.)

Error Code	Name	Description	Potential Cause	Troubleshooting
E36	Ch2 pulse fail	Channel 2 had to many pulse errors.	• Loose/faulty cable. • Hall sensor PCB.	• Check motor cable connections and integrity. • Initialize the system. • Change desk leg.
E37	Ch3 pulse fail	Channel 3 had to many pulse errors	• Loose/faulty cable. • Hall sensor PCB.	• Check motor cable connections and integrity. • Initialize the system • Change desk leg.
E38	Ch4 pulse fail	Channel 4 had too many pulse errors.	• Loose/faulty cable. • Hall sensor PCB.	• Check motor cable connections and integrity. • Initialize the system. • Change desk leg.
E41	Ch1 overload up	Overload up occurred on channel 1.	• Leg is overloaded. • Hit obstruction. • Reached end stop (before initialization at upper end-stop occurs).	• Remove obstruction. • Remove load. • Initialize if necessary.
E42	Ch2 overload up	Overload up occurred on channel 2.	• Leg is overloaded. • Hit obstruction. • Reached end stop (before initialization at upper end-stop occurs).	• Remove obstruction. • Remove load. • Initialize if necessary.
E43	Ch3 overload up	Overload up occurred on channel 3.	• Leg is overloaded. • Hit obstruction. • Reached end stop (before initialization at upper end-stop occurs).	• Remove obstruction. • Remove load. • Initialize if necessary.
E44	Ch4 overload up	Overload up occurred on channel 4.	• Leg is overloaded. • Hit obstruction. • Reached end stop (before initialization at upper end-stop occurs).	• Remove obstruction. • Remove load. • Initialize if necessary.
E47	Ch1 overload down	Overload down occurred on channel 1.	• Hit obstruction.	• Remove obstruction. • Initialize if necessary.
E48	Ch2 overload down	Overload down occurred on channel 2.	• Hit obstruction.	• Remove obstruction. • Initialize if necessary.
E49	Ch3 overload down	Overload down occurred on channel 3.	• Hit obstruction.	• Remove obstruction. • Initialize if necessary.

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Error Code	Name	Description	Potential Cause	Troubleshooting
E50	Ch4 overload down	Overload down occurred on channel 4.	• Hit obstruction.	• Remove obstruction. • Initialize if necessary.
E53	Ch1 anti-col	Anti-collision triggered on channel 1.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E54	Ch2 anti-col	Anti-collision triggered on channel 2.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E55	Ch3 anti-col	Anti-collision triggered on channel 3.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E56	Ch4 anti-col	Anti-collision triggered on channel 4.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E59	Ch1 SLS/ PIEZO	Safety limit switch activated on channel 1.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E60	Ch2 SLS/ PIEZO	Safety limit switch activated on channel 2.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E61	Ch3 SLS/ PIEZO	Safety limit switch activated on channel 3.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E62	Ch4 SLS/ PIEZO	Safety limit switch activated on channel 4.	• Hit Obstruction.	• Remove obstruction. • Initialize if necessary.
E65	Ch1 pulse dir	Pulses counted wrong direction in channel 1.	• Motor poles are crossed. • Hall sensor cables are crossed.	• Check motor cable connections and integrity. • Initialize the system. • Exchange desk leg.
E66	Ch2 pulse dir	Pulses counted wrong direction in channel 2.	• Motor poles are crossed. • Hall sensor cables are crossed.	• Check motor cable connections and integrity. • Initialize the system. • Exchange desk leg.
E67	Ch3 pulse dir	Pulses counted wrong direction in channel 3.	• Motor poles are crossed. • Hall sensor cables are crossed.	• Check motor cable connections and integrity. • Initialize the system. • Exchange desk leg.

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ERROR CODES (cont.)

Error Code	Name	Description	Potential Cause	Troubleshooting
E68	Ch4 pulse dir	Pulses counted wrong direction in channel 4.	• Motor poles are crossed. • Hall sensor cables are crossed.	• Check motor cable connections and integrity. • Initialize the system. • Exchange desk leg.
E71	Ch1A short	Short circuit on channel 1 [If T-splitter is used, short circuit on 1A].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E72	Ch1B short	Short circuit on channel 1 [If T-splitter is used, short circuit on 1B].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E73	Ch2A short	Short circuit on channel 2 [If T-splitter is used, short circuit on 2A].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E74	Ch2B short	Short circuit on channel 2 [If T-splitter is used, short circuit on 2B].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E75	Ch3A short	Short circuit on channel 3 [If T-splitter is used, short circuit on 3A].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E76	Ch3B short	Short circuit on channel 3 [If T-splitter is used, short circuit on 3B].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E77	Ch4A short	Short circuit on channel 4 [If T-splitter is used, short circuit on 4A].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.

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Error Code	Name	Description	Potential Cause	Troubleshooting
E78	Ch4B short	Short circuit on channel 4 [If T-splitter is used, short circuit on 4B].	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.
E84	DC-out	DC unit has been disconnected or failed.	• [Reserved for future development].	• [Reserved for future development].
E86	Master	Connection to master lost OR following messages are from master.	• [Only used in multiparallel system]. • Poor cable connection to master box. • If followed by another error code, then codes being communicated from master box.	• Check connection to master box, check cable integrity. • If communicating other error codes, see above.
E87	Slave 1	Connection to 1st slave lost OR following messages are from 1st slave.	• [Only used in multiparallel system]. • Poor cable connection to slave box. • If followed by another error code, then codes being communicated from slave box.	• Check connection to master box, check cable integrity. • If communicating other error codes, see above.
E88	Slave 2	Connection to 2nd slave lost OR following messages are from 2nd slave.	• [Only used in multiparallel system]. • Poor cable connection to slave box. • If followed by another error code, then codes being communicated from slave box.	• Check connection to master box, check cable integrity. • If communicating other error codes, see above.
E89	Slave 3	Connection to 3rd slave lost OR following messages are from 3rd slave.	• Damage to motor cable. • Damage to cable exiting leg (if applicable).	• Inspect motor cable for damage, replace if damaged. • Inspect cable exiting leg (if applicable), replace if damaged.

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RATINGS

Leg Controller - 1 & 2

Low Load Input 120VAC/60Hz/2A

Low Load Output...24VDC/9A

Low Load Duty Cycle...30 sec on/ 270 sec off

High Load Input..120VAC/60Hz/2A

High Load Output. 24VDC/14A

High Load Duty Cycle. ....20 sec on/ 720 sec off

Nominal power...180VA

Operating voltage (secondary)...29VAC

Operating voltage (electronic) 5VDC

Switching capacity per Output... 24VDC/7A max

Switching capacity all 24VDC/9A

Switching time at maximum power .... 10%/30s max

Ambient temperature .... 0–50° C

Protection type / Protection class II

Weight 2.0kg

Connector socket for drive... 8-pin DIN socket

Connector socket for handset .... 7-pin DIN socket

Leg Controller - 3 & 4

Low Load Input 120VAC/60Hz/2.8A

Low Load Output...24VDC/4x3A

Low Load Duty Cycle...30 sec on/ 270 sec off

High Load Input.. 120VAC/60Hz/3.2A

High Load Output. 24VDC/4x5.25A

High Load Duty Cycle. ....20 sec on/ 720 sec off

Nominal power...230VA

Operating voltage (secondary)...29VAC

Operating voltage (electronic) 5VDC

Switching capacity per Output... 24VDC/7A max

Switching capacity all ....24VDC/12A or 18VDC/16A

Switching time at maximum power .... 10%/30s max

Ambient temperature .... 0–50° C

Protection type / Protection class II

Weight 2.7kg

Connector socket for drive... 8-pin DIN socket

Connector socket for handset .... 7-pin DIN socket

Basic Switch

Operating Voltage.. 5V

Ambient temperature .... 0–50° C

Protection type / Protection class IP-32

Weight 0.3kg

Connector. .... 7-pin DIN plug

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RATINGS (cont.)

Motor

Nominal Operating Voltage 24VDC

Temperature ....-20° to 60° C

Protection type / Protection class ....I P-30

Weight 0.6kg

Connector. .... AMP 929505-2

RFI Suppression ....yes

No Load Current ....~ 3. 0 A

No Load Speed ....140 rpm

Duty Cycle. 10%

Motor Encoder

Input Voltage Range ....4.5V to 18 VDC

Temperature ....-20° to 85° C

Output..Open Collector

Current from Output Signal..Isource 400μA

Output Voltage ....UoutL 1.5V

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