INSTALLATION & USER MANUAL

LUX DC12

Drum Mount

Roll Up
Garage Door Operator

- 12 Volt DC
- For Single Garage Doors

Proudly manufactured by

DACE
ACCESS CONTROL PRODUCTS

www.dace.co.za

Ver 1.01

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FOREWORD

Thank you for choosing Dura Access Control Equipment (DACE). We welcome you to the ever growing international community of DACE product owners. The advanced engineering and high-quality construction of each DACE product we build is something of which we are proud.
The LUX DC12 garage operator is packed with features to bring you convenience and enhance your security.
Your owners manual will introduce you to the features and operation of your new LUX DC12. It is suggested that you read it carefully since the information it contains can contribute greatly to the satisfaction you receive from your new garage door operator.

Important information before automating your garage door!

- Only automate garage doors that are within specification and are in good working order. The door must be able to be opened and closed using only one hand and, if released midway, the door should not move. The force used to open the door by hand should be similar to that used to close the door. If the door is not in perfect working order, it should be serviced by a qualified garage door technician prior to automation.
- Automating a garage door increases the risk of entrapment and crushing. While all reasonable steps have been taken to ensure that your garage door operator is safe to install and operate, it must be noted that a garage door is a heavy piece of equipment and can cause serious injury and death. Never allow children to play with or around the garage door. Only activate the garage door when it is in full view and when there are no children or animals in close proximity that could get injured.
- We highly recommend the installation of Infrared Safety Beams to increase the safety of the door's operation.
- The LUX DC12 is not waterproof and is therefore not suitable for outdoor use.
- It is important to note that the LUX DC12 garage operator is battery operated and by simply switching off the mains power supply to the operator it does not mean that the operator does not have power. It is therefore important that both the mains power supply and the battery be disconnected before working on the operator.
- Use extreme caution when operating the manual release as the door may move, resulting in injury or damage. The door should be inspected every 6 months by disengaging it from the operator and moving it by hand. The door should move easily but it should not close on its own if released. If the door is found to be defective, it must remain disconnected from the operator and a qualified garage door technician be called to carry out repairs to the door.
- If the garage does not have an interleading pedestrian door, then the garage door/s must be fitted with an emergency key release!

Please attach your invoice to this manual for future use (see warranty)!

DISCLAIMER

Dura Access Control Equipment reserves the right to make changes to the products described in this manual without notice and without obligation to notify any persons or organisations of such revisions or changes. Additionally, DACE makes no representations or warranties with respect to this manual.
This manual may only be copied or distributed as a whole, no alterations or subsections may be distributed or copied without the prior express consent of DACE in writing

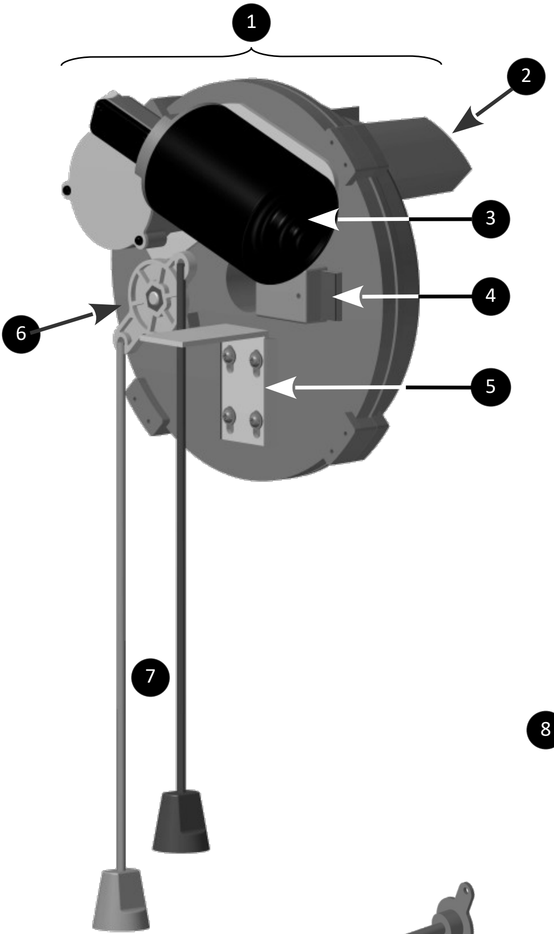
Anti-Crush Gap	This is the small section of travel near the end of the door's closing cycle. If the operator receives a trigger in this section of travel, the door will reopen to prevent possible damage or injury.
Auto Close Function	When set, this function will enable automatic closing of the garage door after a set period of time.
Balanced Door	When the force required to open the garage door is equal to the force required to close the garage door.
Control Board	The main electronic circuit board housed inside the operator.
Courtesy Light	The light, built into the operator Control Board, which switches on during each door operation and can also be operated by pressing a programmed button on a remote control.
Door Balance	The even distribution of the doors opening and closing forces.
Door Curtain	The corrugated coiling door section, typically made from steel sheeting or fibreglass slats.
Fuse	A removable electronic component on the Control Board that protects the Control Board from damage in the case of severe forces being applied.
Infrared Safety Beams	Optional electronic sensors which prevent the garage door from closing if the infrared beam, being transmitted between the sensors, is blocked, indicating an obstruction.
LED Display	Electronic alphanumeric display on the operator used to assist with programming and fault finding.
Lockout	An electronic security function that will prevent the door from receiving a trigger while the function is active.
Manual Release Mechanism	The Manual Override Lever and Release Cords, used to place the garage operator into manual mode, allowing for the garage door to be operated manually.
Obstacle Sensing	The detection of an obstacle causing the motion of the door to be impeded through the processing of algorithms in the garage door operator's software.
Onboard Receiver	An integrated part of the Control Board which receives the signal from the Remote Control to trigger the operator.
Ramp Down	Process of the operator slowing down the door's travel speed towards the end of the door's travel.
Remote Control	The hand held device used to activate the opening and closing of the operator.
Remote Button	One of several buttons on a remote control used to activate various functions.
Solar Panel	An optional device connected directly to the Control Board to make use of sun energy instead of a buildings mains supply for charging the operator's battery.
Transformer	An external device connected to the buildings mains supply via a plug point that reduces the mains voltage to a safe voltage to charge the operator's battery.
Weight Bar	Metal bar mounted on the bottom of the roll up garage door to prevent ballooning of the curtain at the top.
Ballooning	When an obstruction occurs midway through closing the door, and the motor continues to operate, it causes the top of the door's curtain to bulge or expand.

TECHNICAL SPECIFICATIONS

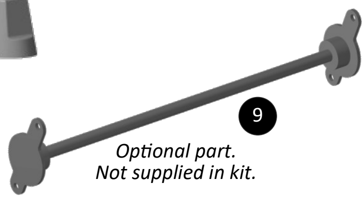
Transformer Voltage	Input Voltage: 220 - 240V AC @50Hz Output Voltage: 12 - 18V AC
Board Input Supply	12 - 18V AC (Transformer) OR 17 - 22V DC (Solar Panel)
Peak Power Consumption	16W
Motor Voltage	12V
Motor Current	8,5A
Motor Power (Rated)	100W
Maximum Lifting Load	180N ***Based on a door of 2,2m in height & with a rolled up drum diameter of 36cm***
Maximum Holding Torque	40Nm
Maximum Driving Torque	33Nm
Battery	12V DC
Maximum Standby Duration (Mains Fail) ***Depending on ancillary equipment: battery charge level & quality.*** ***Operation: either Open or Close*** ***Cycle: both Open and Close***	Number of Operations during Mains Fail: • Within 6 hours: 400 operations (200 cycles) ***OR*** • Within 24 hours: 300 operations (150 cycles) ***OR*** • Within 100 hours: 16 operations (8 cycles) ***Measured using a 7Ah battery on a 5m² door with a lifting force of 50N.***
Maximum Daily Operations	Using Mains Supply: 330 Operations (150 Cycles) per day Using Solar Panel: 20 Operations (10 Cycles) per day
Maximum Door Size	$8m^2$
Maximum Lifting Height	4m
Drum RPM	11 RPM
Typical Travel Speed	9.5m/min ***Dependent on door size & make, load and battery voltage.***
Outputs	Auxiliary: Selectable to be either a light, trigger, status, low battery indicator or toggle. Lock: Selectable to function with either an electric or magnetic lock.
Inputs	External Trigger and Beams

FEATURES

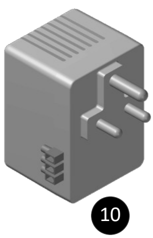
Programmable limits	Adjustable force settings	Infrared beam input	Lock output
Auxiliary Output: Light, Trigger, Door Status, Battery Status or Toggle	Trigger input	Holiday lockout	Single remote erase
Up to 64 programmable remotes	Remote buttons can be set to activate the light, lockout or auxiliary toggle individually.	Adjustable auto close function	Solar panel auto detection
Close gap safety zone	Ultra Slimline Power Head	Positive door release	Dual 7 segment display
Built in LED cluster courtesy light	Adjustable external courtesy light timing	Dynamic & static anti-crush safety setting	Extended power fail operation
Self diagnostic	Door position sensing		

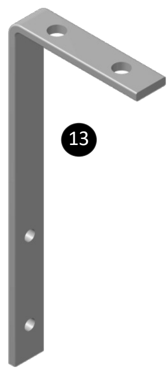


1	Motor Head
2	Drive Forks
3	12v Motor
4	Position Sensor
5	Floating Bracket
6	Manual Override Lever
7	Release Cords
8	Control Box
9	Manual Override Extension Rod
10	Plug in Transformer
11	12v Battery
12	4 Button Remote (x2)
13	Control Box ‘L’ Bracket



Optional part.
Not supplied in kit.





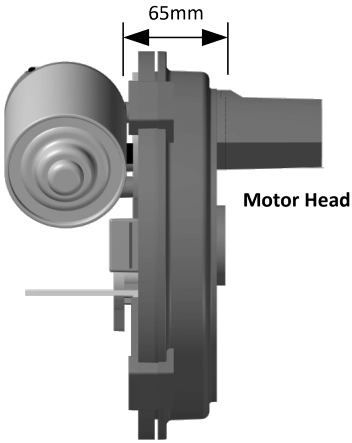
BEFORE INSTALLING THE LUX DC12 RDO

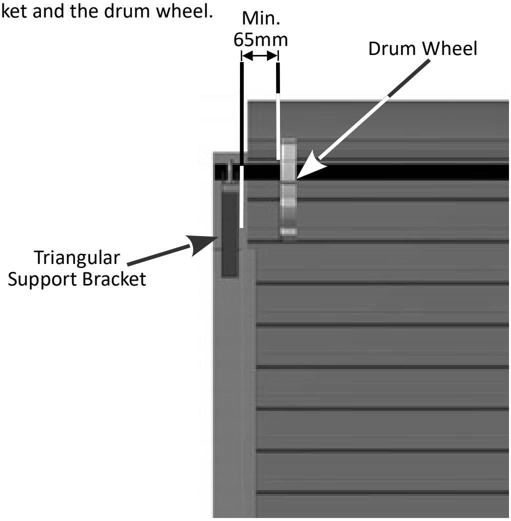
Check door balance & movement:

Prior to installing the LUX DC12, it is essential to verify that the garage door is properly balanced and operates smoothly. As a general guideline, if you cannot easily open the door using just one hand, it is advisable to arrange to get the door serviced by a skilled garage door technician. To check the balance, open the door to approximately one metre and then release it. The door should neither drop, nor rise, by more than 10cm.

Space required for motor head:

Due to its innovative slimline design, the LUX DC12 RDO motor head only requires a minimum of 65mm of space between the door's triangular support bracket and the drum wheel.



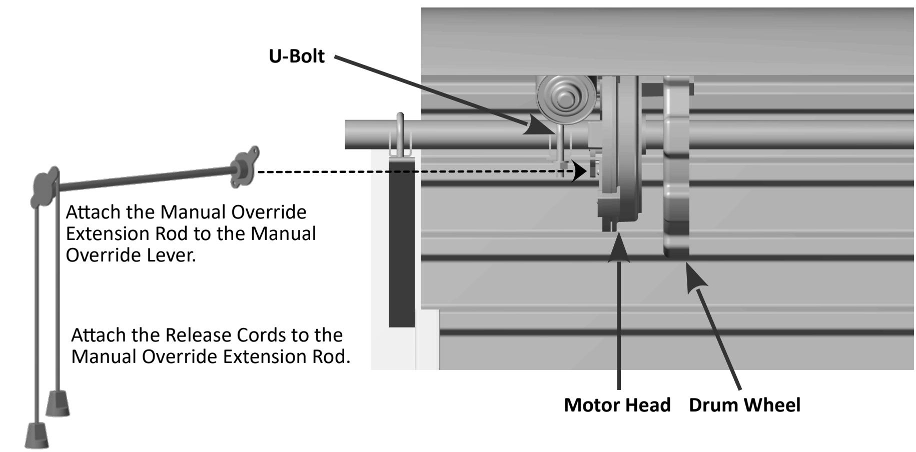


MANUAL OVERRIDE FOR A DEEP SET DRUM WHEEL

To enable manual override when the drum wheel is positioned deep within the door curtain, the LUX Manual Override Extension Rod (LUX001) must be attached to the Manual Override Lever.

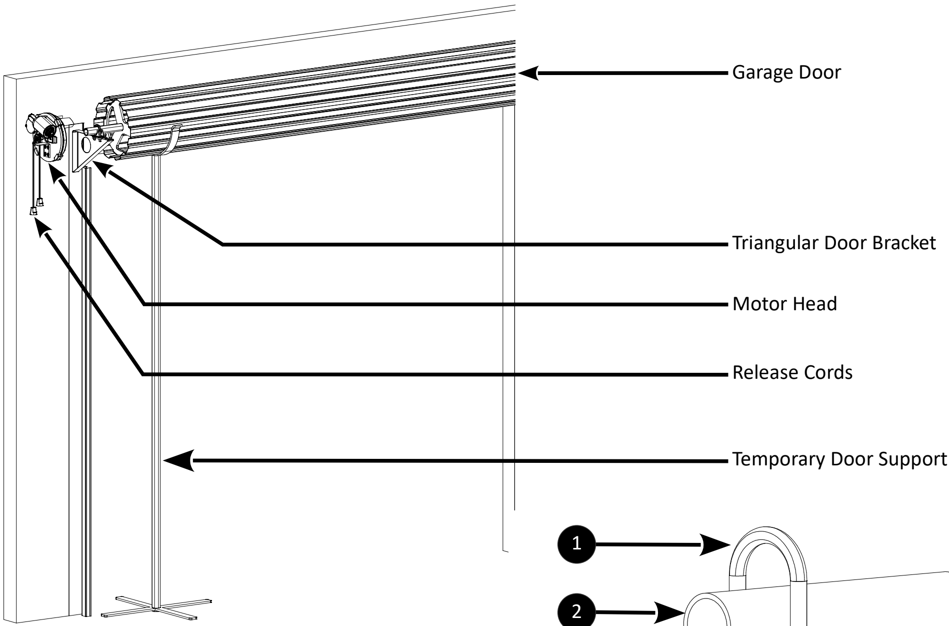
The LUX Motor Head should be firmly secured to the door axle to prevent any rotation.

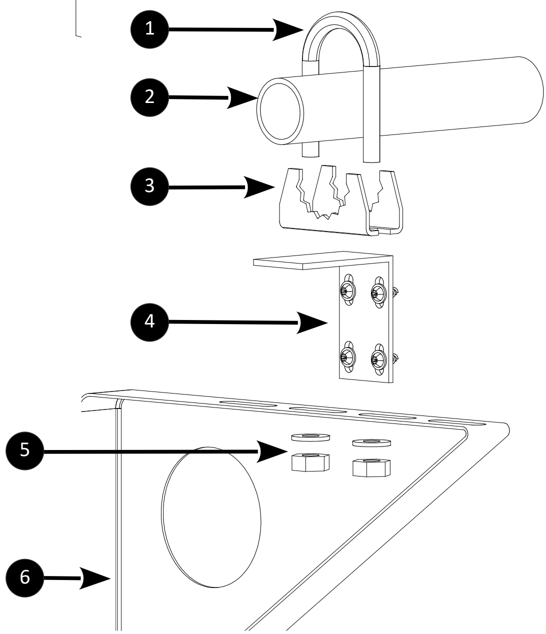
CAUTION: Failure to adequately secure the LUX Motor Head to the door's axle will result in damage to the operator's wiring.



FITTING THE MOTOR HEAD TO THE DOOR

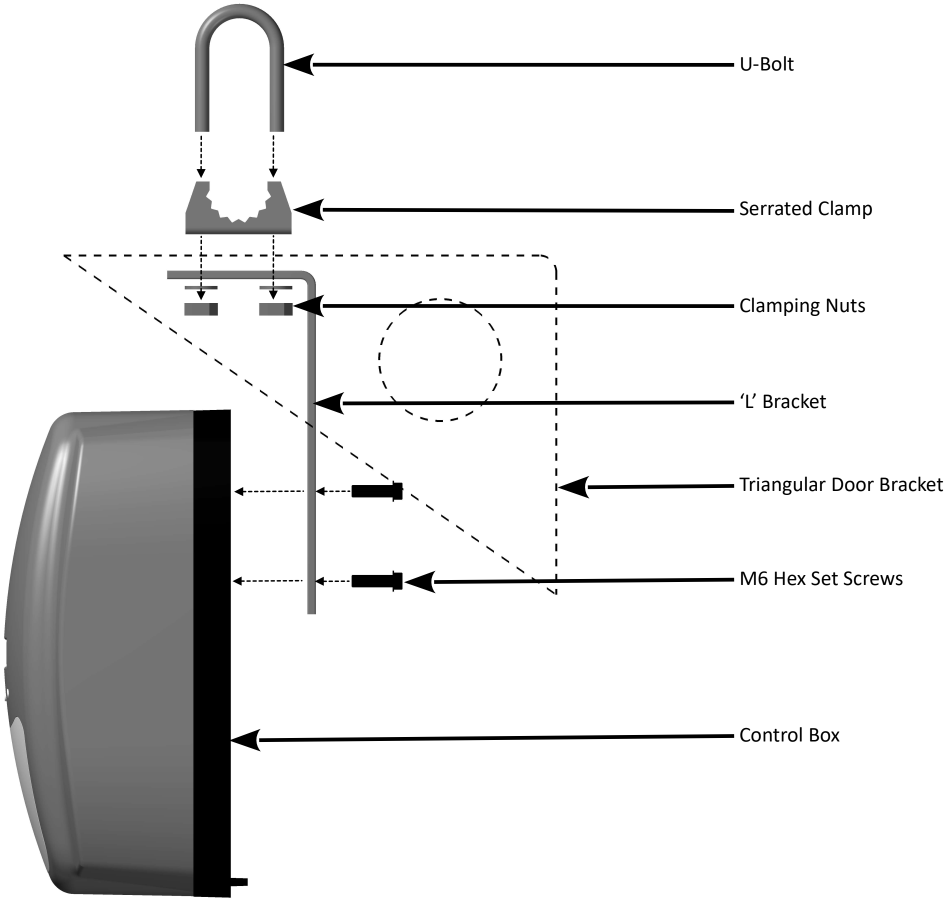
1. Position a suitable support beneath the door closest to where the LUX Motor Head will be installed.
2. Make sure the U-Bolt on the **opposite** end is securely **tightened** to prevent the door axle from slipping.
3. Take off the Triangular Door Bracket from the wall, allowing the door to rest gently on the support.
4. Set the LUX Motor Head to manual override mode, allowing the forks to move freely.
5. Slide the LUX Motor Head onto the Door Axle until the Drive Forks engage with the drum wheel spoke.
6. Reattach the Triangular Door Bracket to the wall.
7. Place the U-Bolt and its serrated clamp over the floating bracket, then fasten the U-Bolt securely.
8. Remove the door support.
9. Ensure that the override release cords are free and cannot become entangled with the door whilst the door is in operation.





1	U-Bolt
2	Door Axle
3	Serrated Clamp
4	Floating Bracket
5	Clamping Nuts
6	Triangular Door Bracket

MOUNTING THE CONTROL BOX



BEFORE PROGRAMMING & COMMISSIONING THE OPERATOR

The LUX DC12 operator uses a 12V battery for normal operation, it is important that the battery is always connected when the operator is in use.

▶ **Setting the Open and Close limits**:

After the operator has been assembled and attached to the door, it must be programmed to recognise the door's Open and Close limits.

On first power up, or after a factory reset, the operator's LED display will flash **nL**. This is the indication that the door limits need to be set. The operator will not allow operation of the door until this process has been completed.

Note: Depending on the motor wiring polarity, the UP and DOWN buttons on the operator may not necessarily correspond with the actual direction that the door is moving in. The operator will automatically correct this once the Open and Close Limits have been set.

Follow 'Setting the Open and Closed Limits...Menu 1' to program the limits for the door.

Once the limits have been set, the door can be opened and closed using the UP or DOWN buttons on the operator.

If, after the initial setup, the limits need adjusting the Programming Menu (Pr) can be entered again by pressing the SET button for 3 seconds and using the 'Set Open & Close Limits' menu.

▶ **Programming Remotes**:

The Control Board has a built in receiver. The remotes, supplied as part of the operator kit, will have already been programmed to the operator at the factory. ***To add additional remotes (up to 64) refer to 'Programming Remotes' on page 14***.

In addition to triggering the operator to open and close, remotes can be programmed with the following features:

- **Additional opening & closing buttons**:

  Each remote can be programmed with multiple open and close buttons. An example of this feature is programming one button to open & close the garage door and a second button to not only operate the door but also to open and close a gate or switch on security lights.

- **Remote Holiday Lockout**:

  Any button (or multiple buttons) on a remote can be programmed to enable or disable the Holiday Lockout feature. When activated, the display on the operator will change to **LO**. Placing the Control Board into Holiday Lockout will prevent any remote from activating the operator until Holiday Lockout is deactivated. This feature is useful to prevent any members of staff or contractors from entering the garage while the owners are away or to prevent the door from being operated while work is being done on, or near, the door.

▶ **Courtesy Light Operation**:

The operator has a built in LED light and whenever the operator is activated, this Courtesy Light will switch on for a period of 5 minutes. During a power failure, however, the Courtesy Light will only remain on for a period of 1 minute.

In addition to the standard Courtesy Light operation, the built in LED light can also be switched on and off using a remote control button, without activating the operator. To achieve this, a dedicated button on the remote must be programmed to the operator. Pressing this designated button on the remote will activate the light for a period of one hour, unless it is switched off using the same button again.

> **During a power failure the courtesy light will switch off after one minute, even if the dedicated light button is pressed.**

> **The Anti Crush Gap is the 30cm space towards the end of the door closing cycle, before the door is fully closed. This is a built in safety feature to prevent the entrapment of people or animals by the door.**

The following will happen if the operator receives a trigger from a remote (or the buttons on the operator) while the door is already in motion:

- If the door is closing, the door will stop briefly and then reopen to the fully open position.
- If the door is opening and it is stopped within ±30cm of the fully closed position, it will continue opening when it receives the next trigger to prevent it from closing on a child or animal.
- If the door is opening, and it is stopped further than ±30cm from the closed position, the door will start to close when it receives the next trigger.

▶ **Door operation during low battery and power fail conditions**:

The operator will flash an **Lb** (Low Battery) error message due to excessive operations, long power failure or a damaged battery.

While the **Lb** condition persists, the door will not close automatically. This is to prevent a person from being locked out of the garage. The door will have to be closed manually by releasing the Manual Release Mechanism.

Note: If the door is stopped during a power failure while it is closing, it will not automatically reverse back open.

▶ **Auto Close Function**:

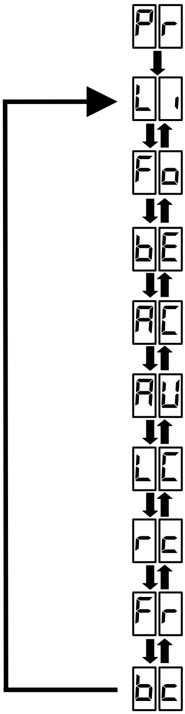
The operator can be programmed to automatically close the door after a programmed period of time. Auto Close can only be activated if Safety Beams have been installed. When enabling the Auto Close function the Safety Beam function will automatically be enabled.

PROGRAMMING MENU

Press and hold the **SET** button for 3 seconds to enter the Programming Menu, use the UP and DOWN buttons to navigate through the menu.

To exit the menu, arrow down to the EXIT prompt (**bc**) and press the **SET** button.

Press and hold the **SET** button for 3 seconds to enter the Programming Menu.



- Pr – Programming Menu
- Li – (1) Setting the Open and Close Limits
- Fo – (2) Setting the Opening & Closing Force
- bE – (3) Enable or Disable Safety Beams
- AC – (4) Setting Auto Close
- AU – (5) Setting Auxiliary Output
- LC – (6) Enable or Disable Electric/Magnetic Lock
- rc – (7) Programming Remotes
- Fr – (8) Factory Reset
- bc – Exit Menu

To exit the Programming Menu, press **SET** at the **bc** prompt.

SETTING THE OPEN & CLOSE LIMITS ....Menu 1

1) Ensure the battery is connected to the operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	**SET** → Pr
3) Press the DOWN button until **Li** is visible.	⬇ Li
4) Press the SET button. The display will change to **oL**.	**SET** → oL
5) Use the UP or Down buttons to move the door to the OPEN position. ***Note****:* It is important that the OPEN position is programmed. ***Ignore the UP/DOWN arrow directions if they are reversed.***	⬆⬇
6) When the door is in the open position, press the SET button. The display will change to **cL.**	**SET** → cL
7) Use the UP or Down buttons to move the door to the CLOSE position. ***Note****:* ***Ignore the UP/DOWN arrow directions if they are reversed.***	⬆⬇
8) When the door is in the closed position, press the SET button. The door will automatically run through a cycle & the software will correct the arrow directions if they were incorrect.	**SET** → CL
9) The open and closed limits are now set.	

SETTING THE OPENING & CLOSING FORCE ....Menu 2

1) Ensure the battery is connected to the operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	**SET** ⟶ Pr
3) Press the DOWN button until the Force Limit Menu (**Fo**) is visible.	⬇ Fo
4) Press the SET button to enter the Force Limit Menu. The display will change to the current Force Limit value **F3** (this is the default setting).	**SET** ⟶ F3
5) Press the UP or DOWN buttons to scroll through the Force Limit values. **F0** (minimum force) to **F9** (maximum force). ***	⬆⬇
6) Press the SET button on the chosen Force Limit value to accept.	**SET**
*** ***Caution****: too high a force setting could cause injury or damage!!*	

ENABLE OR DISABLE SAFETY BEAMS ....Menu 3

1) Ensure the battery is connected to the operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	**SET** ⟶ Pr
3) Press the DOWN button until the Beams Menu (**bE**) is visible.	⬇ bE
4) Press the SET button to enter the Beams Menu. The display will change to (**by**)	**SET** ⟶ by
5) Press the UP or DOWN buttons to toggle between ENABLE (**by**) and DISABLE (**bn**).	⬆⬇
6) Press the SET button on either ENABLE (**by**) or DISABLE (**bn**) the beams.	**SET**

SETTING AUTO CLOSE ....Menu 4

1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	**SET** ⟶ Pr
3) Press the DOWN button until the Auto Close Menu (**AC**) is visible.	⬇ AC
4) Press the SET button to enter the Auto Close Menu. The display will change to the number **A0** (Auto Close Time value).	**SET** ⟶ A0
5) Press the UP or DOWN buttons to scroll through the Auto Close time values. **A0** (zero seconds or DISABLE Auto Close) to **A9** (90 seconds). This is in increments of 10 seconds.	⬆⬇
6) Press the SET button on the desired Auto Close time value to select.	**SET**
Important: Auto Close can only be activated if Safety Beams have been installed. It should be noted that the Safety Beam function will automatically be enabled when setting the Auto Close function.	

SETTING THE AUXILIARY OUTPUT ....Menu 5

1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	SET ⟶ Pr
3) Press the DOWN button until the Auxiliary Output Menu (**AU**) is visible.	⬇ AU
4) Press the SET button to enter the Auxiliary Output Menu. The display will change to the currently selected auxiliary function (default **AL**).	SET ⟶ AL
5) Press the UP or DOWN buttons to scroll through the Auxiliary Output Menu options. ***Note**: **Auxiliary Output is a single connector and only one option can be selected!***	⬆⬇

Output options available:

a) Auxiliary Light (**AL**):

This is an adjustable pulsed output, ranging from 0,25 seconds (**T0**) to 9 minutes (**T9**), in increments of 1 minute.

This output will activate when the door is opened and can be used to temporarily switch on lights or bypass alarm passives when entering the garage.

Press the SET button to enter the **AL** menu. Press the UP or DOWN buttons to scroll through the time options (**T0** to **T9**). Press the SET button to select the desired time.

b) Low Battery Warning (**Ab**):

This output will activate when there is a low battery condition.

This output, which can be connected to a buzzer, light or external GSM, will activate to indicate that the operator battery is low.

From the Auxiliary Output Menu (**AU**), press the UP or DOWN buttons until reaching **Ab**. Press SET to select.

c) Auxiliary Trigger (**At**):

This output gives a pulsed trigger output every time the door is activated when it is in the fully closed position. It can be connected to a wired remote to activate other devices or to pulse stretching devices to switch lights on, bypass beams or passives etc.

From the Auxiliary Output Menu (**AU**), press the UP or DOWN buttons until reaching **At**. Press SET to select.

d) Auxiliary Status (**AS**):

This output indicates the 'door status'. ***** It can be connected to an external LED to indicate if the door is open or closed and if the battery is charging.

Note**: **If the door is in override the AS might give a false indication!

From the Auxiliary Output Menu (**AU**), press the UP or DOWN buttons until reaching **AS**. Press SET to select.

e) Auxiliary Toggle Relay (Ar):

This output can be selected to toggle the Auxiliary Output. It can be used to remotely control devices such as beams, lights & pumps.

From the Auxiliary Output Menu (**AU**), press the UP or DOWN buttons until reaching **Ar**. Press SET to select.

ENABLE or DISABLE ELECTRIC/MAGNETIC LOCK ....Menu 6

1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	**SET** → Pr
3) Press the DOWN button until the Lock Menu (**LC**) is visible.	⬇ LC
4) Press the SET button to enter the Lock Menu.	**SET**
5) Press the UP or DOWN buttons to select the lock type. **PL** - Magnetic / Power Lock **EL** - Electric / Strike Lock or **OF** - Disable the Lock output	⬆⬇
6) Press the SET button to select the lock type (**PL** or **EL**) or to disable the lock output (**OF**).	**SET**

PROGRAMMING REMOTES ....Menu 7

PROGRAMMING A REMOTE BUTTON TO TRIGGER THE OPERATOR	
1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	**SET** → Pr
3) Press the DOWN button until the Remote Menu (**rc**) is visible.	⬇ rc
4) Press the SET button to enter the Remote Menu. The display will change to **LE** (Learn).	**SET** → LE
5) To program a remote, press and hold the remote button that is to be used to trigger the operator.	
6) While holding the remote button, press the SET button on the operator. The display will indicate the stored position that the newly programmed remote holds (01 to 64). The remote button has now been programmed.	
7) To continue programming remotes, repeat steps 5 and 6 while the menu remains on **LE**.	
8) To exit **LE**, use the UP or DOWN buttons to scroll to **bc** and press the SET button. This will return you to the Programming Menu (**Pr**).	bc → **SET**
9) To exit the Programming Menu (**Pr**), scroll again to **bc** and press the SET button.	bc → **SET**

PROGRAMMING A REMOTE BUTTON TO TURN THE OPERATOR LIGHT OR AUXILIARY RELAY ON and OFF	
1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	SET → Pr
3) Press the DOWN button until the Remote Menu (**rc**) is visible.	⬇ rc
4) Press the SET button to enter the Remote Menu. The display will change to **LE** (Learn).	SET → LE
5) Press the DOWN button until **Lt** (Light) or **Ar** (Auxiliary Relay) is visible.	⬇
6) Press and hold the remote button that is to be used to turn the operator light or relay on and off. Do not use the same button that was programmed to trigger the operator.	
7) While holding the remote button, press the SET button on the operator. The display will indicate the stored position of the remote being programmed (01 to 64). The button has now been programmed.	SET
8) To exit the Light Menu (**Lt**), use the UP or DOWN buttons to scroll to **bc** and press the SET button. This will return you to the Programming Menu (**Pr**).	bc → SET
9) To exit the Programming Menu (**Pr**), scroll again to **bc** and press the SET button.	bc → SET

ERASING A SINGLE REMOTE and ITS BUTTONS FROM THE OPERATOR	
To erase a single remote from the operator it is necessary that you know the stored position of the particular remote (01 to 64).	
1) Ensure that the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	SET → Pr
3) Press the DOWN button until the Remote Menu (**rc**) is visible.	⬇ rc
4) Press the SET button to enter the Remote Menu. The display will change to **LE** (Learn).	SET → LE
5) Press the DOWN button until **Cl** is visible.	⬇ Cl
6) Press SET button	SET
7) To erase the remote, press the UP or DOWN buttons to select the position that the remote was in (01 to 64) and press SET. The remote and all its buttons have been erased from the operator.	
8) To exit **Cl,** use the UP or DOWN buttons to scroll to **bc** and press the SET button. This will return you to the Programming Menu (**Pr**).	bc → SET
9) To exit the Programming Menu (**Pr**), scroll again to **bc** and press the SET button.	bc → SET

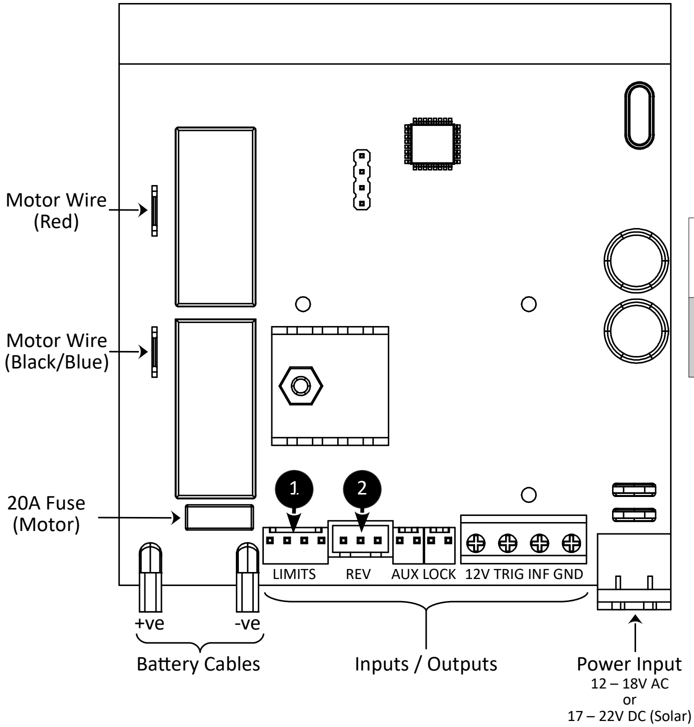
ERASING ALL REMOTES and THEIR BUTTONS FROM THE OPERATOR	
1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	SET → Pr
3) Press the DOWN button until the Remote Menu (**rc**) is visible.	⬇ rc
4) Press the SET button to enter the Remote Menu. The display will change to **LE** (Learn).	SET → LE
5) Press the DOWN button until **Er** is visible.	⬇ Er
6) Press the SET button. While holding the SET button, press either the UP or DOWN button. Continue to hold the two buttons until the visible countdown on the LED display is complete (E5 to E0). All remotes have now been erased from the operator.	
7) Exit the Programming Menu by scrolling to **bc** and pressing the SET button.	bc → SET

PROGRAMMING A REMOTE BUTTON TO SET THE HOLIDAY LOCKOUT FEATURE	
1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	SET → Pr
3) Press the DOWN button until the Remote Menu (**rc**) is visible.	⬇ rc
4) Press the SET button to enter the Remote Menu. The display will change to **LE** (Learn).	SET → LE
5) Press the DOWN button until **Lo** is visible.	⬇ Lo
6) Press and hold the remote button that will be used to activate the Holiday Lockout feature.	
7) While holding the remote button, press the SET button on the operator. The display will indicate the stored position of the remote being programmed (01 to 64). The button has now been programmed.	SET
8) To exit the Holiday Lockout Menu (**Lo**), use the UP or DOWN buttons to scroll to **bc** and press the SET button. This will return you to the Programming Menu (**Pr**).	bc → SET

FACTORY RESET ....Menu 8

1) Ensure the battery is connected to the Operator.	
2) Press & hold the SET button for 3 seconds to enter the Programming Menu (**Pr**).	SET → Pr
3) Press the DOWN button until the Factory Reset (**Fr**) is visible.	⬇ Fr
4) Press the SET button. While holding the SET button, press either the UP or DOWN button. Continue to hold the two buttons until the visible countdown on the LED display is complete (F9 to F0). Factory Reset is complete.	
5) The screen will return to the Programming Menu (**Pr**).	Pr
6) Press the DOWN button until **Li** is visible and proceed to reprogram the doors limits.	⬇ Li
7) Reprogram all remotes and operator settings.	

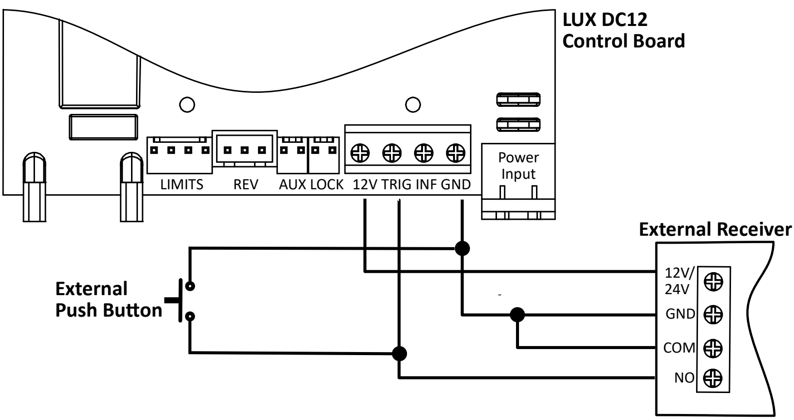
CONTROL BOARD LAYOUT



1	**LIMITS**: Not used on the Drum Mount Operators
2	**REV**: Connect the 3 pin plug from the motor to the connector.

ADVANCED CONTROLLER PROGRAMMING OPTIONS

1. External trigger:
The LUX operator can be activated using other external devices such as Push Buttons, external Receivers or GSM Receivers.

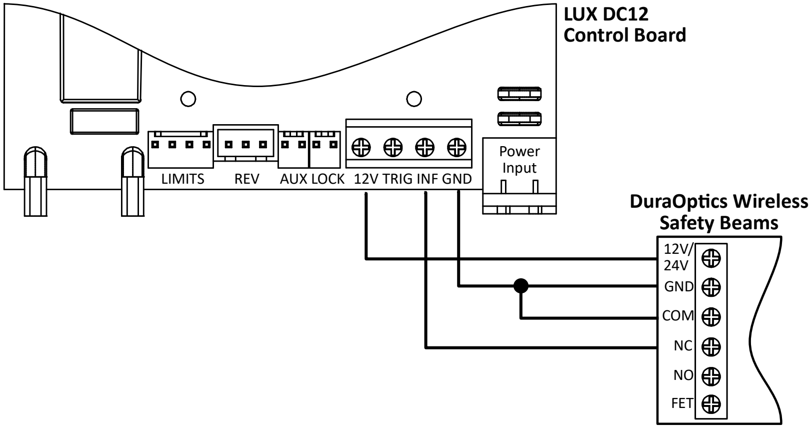


2. Safety Beams

Safety Beams are used for the early detection of an object obstructing the closing door that could result in damage or injury. While Safety Beams will detect most obstructions including cars, people and pets, it may not necessarily detect all obstacles but will greatly reduce the risk. It is highly recommended that Safety Beams are fitted when automating a garage door.

For the purposes of the wiring diagram DuraOptics Wireless Safety Beams (code DOPT03) are shown.

Refer to 'Enable or Disable Safety Beams....Menu 3' for programming.

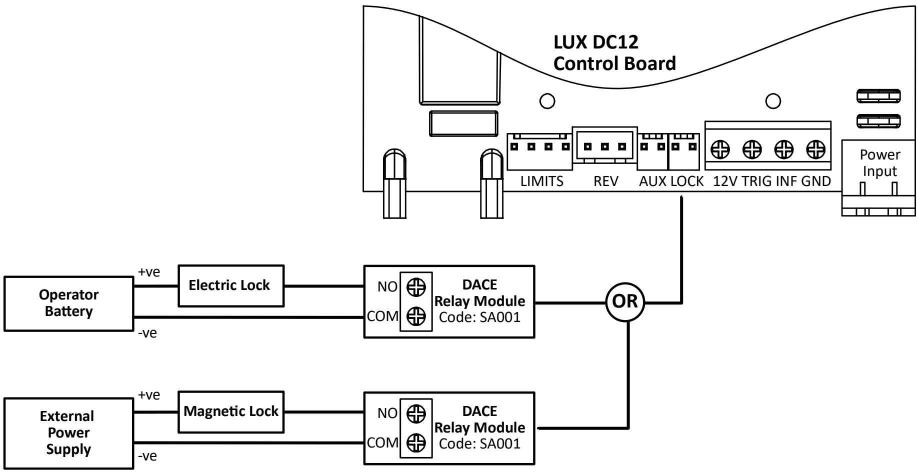


3. Electric and Magnetic Locks

An automated door must not be locked using a padlock as both the door and the operator could be damaged should the operator be triggered while the door is locked.

If extra security is required the door can be locked using either an Electric Lock (strike lock) or a Magnetic Lock (power lock) and controlled by the operator.

Refer to 'Enable or Disable Electric/Magnetic Lock....Menu 6' for programming.



After connecting the lock, it is important to select the correct lock type in the operator's Programming Menu, as selecting the wrong lock type may cause damage to the lock or cause the lock to function incorrectly.

PL - Magnetic / Power Lock

EL - Electric / Strike Lock

***Caution*:**

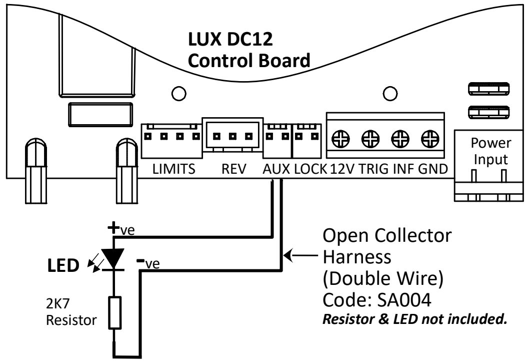
When fitting a Magnetic Lock to the door, do NOT use the power from the operator as the lock will drain the operator's battery power.

Only use an external source to power the Magnetic Lock.

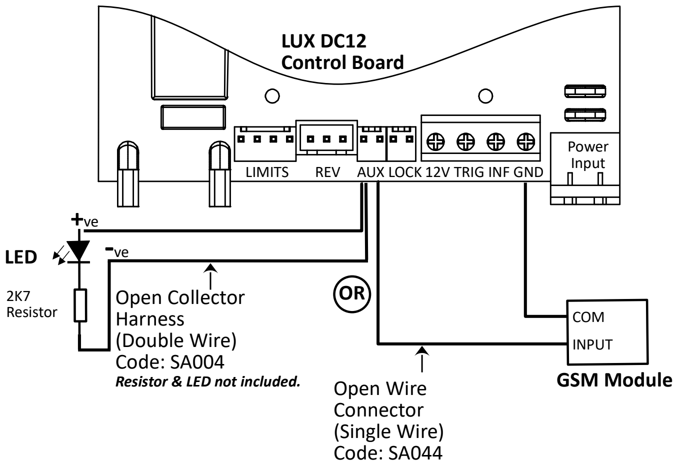
4. Status Output (auxiliary)
This output indicates the Mains Supply status and the position of the Operator. A 5mm LED can be connected to the Status Output and positioned in a convenient location for a visual indicator.
Note: the Status Output only gives indication of the operational status of the Operator and NOT the door itself.

Refer to 'Setting Auxiliary Output....Menu 5' for programming.

LED	OPERATOR & MAINS STATUS
ON	The operator/door is open
OFF	The operator/door is closed and the mains is off.
BLINK	The operator/door is closed and the mains is on.

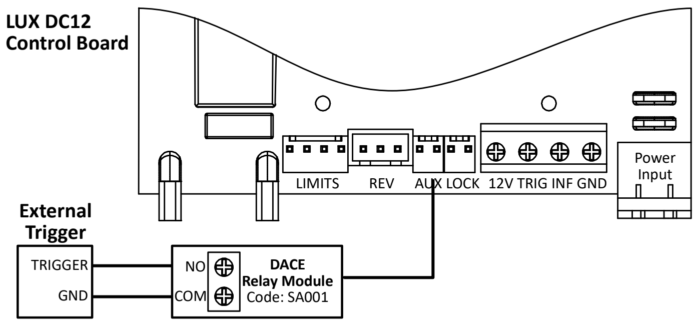


5. Low Battery Output (auxiliary)
This output will provide indication when the battery is low. An LED or a GSM transmitter can be used.
Refer to 'Setting Auxiliary Output....Menu 5' for programming.



6. Trigger Output (auxiliary)
The Trigger Output is used to trigger other external devices at the same time that the door operator is triggered. These devices can include buzzers inside the house which sound when the garage door is triggered. Another example is the switching on of lights or the deactivation of the home alarm by triggering a Pulse Stretcher.

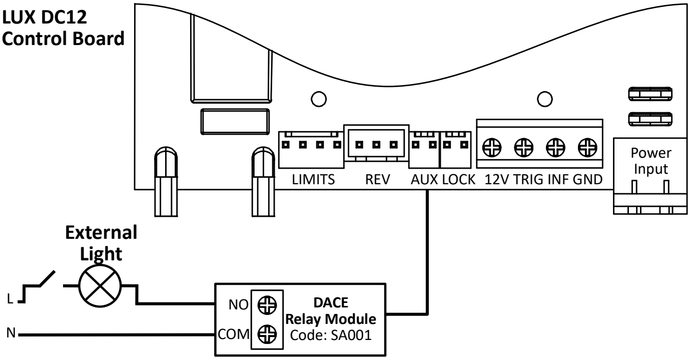
Refer to 'Setting Auxiliary Output....Menu 5' for programming.



7. Auxiliary Light

The Auxiliary Light output is used to connect an external light to the operator. The external light can be switched on when the operator is triggered for a preselected period of time (up to 9 minutes) or the light can be activated via a dedicated remote button, without triggering the operator. If switched on by a dedicated button, it will remain on for a period of 1 hour but can be switched off before 1 hour is up by pressing the same button again.

Refer to 'Setting Auxiliary Output....Menu 5' for programming.

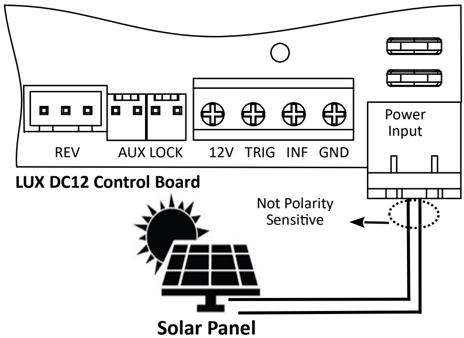


CONNECTING A SOLAR PANEL

- Solar panels must be mounted in direct sunlight and the panel angle alignment should be adjusted for optimal conditions for the location. It is very important to ensure that no shadows will cross the panel during the day.
- It is recommended that a battery with a capacity of at least **7Ah** is used.
- The operator will automatically detect that it is connected to a solar supply once the panel voltage exceeds 17V DC. It will then no longer indicate a power fail message but will only display a single bar "_" when the panel output voltage is too low for charging.
- When connecting a solar panel directly to the controller the transformer must be removed from the input.

Solar Panel specs:

Power Rating:	40W min
Min Voltage output:	17V DC
Max Voltage Output:	22V DC.



ERROR CODES

ERROR CODE	MEANING	CAUSE & REMEDY
Lb	Low Battery	**Cause**: Low battery voltage. The battery may be faulty or an excessive number of operations, or devices, may have drained the battery. **Remedy**: Ensure the operator is plugged in and switched on. Fully charging a 5Ah 12V battery will take 24hrs if the operator is not in use and if no other devices, such as locks; receivers & lights, are connected. Check that connected devices are not drawing excessive currents. Additional devices will reduce the number of daily operations and standby operations.
PF	Power Fail	**Cause**: The operator is not detecting an input supply voltage. **Remedy**: If using a transformer, ensure that the transformer is plugged in and switched on. The output voltage should be between 12VAC – 18VAC, if not the transformer may need to be replaced. If using a solar panel, ensure the output voltage is between 17VDC - 22VDC. When a solar panel is connected to the operator it is necessary for the DC voltage to be higher than 17V for the operator to switch to DC Solar Operation after which the operator will stop showing the Power Fail message.

ERROR CODE	MEANING	CAUSE & REMEDY
bb	Beams Blocked	**Cause**: The infrared beam between the two Safety Beam sensors are blocked, indicating an obstruction or the batteries in the transmitter beam are low. **Remedy**: Remove anything that may be obstructing the doorway. If there is no obstruction, check that the Beam's wiring is correct. Test the beams to ensure they are in fact operational. Check for possible ant infestations in the beams. If no beams have been installed, ensure that the beams setting in the operator menu is set to bn.
LO	Lockout	**Cause**: The operator has been placed in 'Holiday Lockout' mode. **Remedy**: To deactivate Holiday Lockout, press the button on the remote that was assigned to activate Holiday Lockout. To prevent accidental activation, is it recommended that the function is assigned to a remote/s by pressing two of the remote buttons simultaneously. This will reduce the risk of accidentally activating the Lockout function.
ES	Encoder Stop (Fault/Obstruction)	**Cause**: The operator has 'stalled'. This could be as a result of the door hitting an obstruction, the limits being set incorrectly, an incorrect force limit setting or a faulty Encoder. **Remedy**: 1) Remove any physical obstruction. If no obstruction....2. 2) Check that the limits have been set correctly and that the door is not stopping hard against the floor or any other physical stop. If the limits are set correctly.....3. 3) Check the Door Balance. To do this, disengage the door via the Manual Release Mechanism. Be sure to support the door before doing so to ensure that the door does not drop after being released. Manually open and close the door. The door should open and close easily, requiring the same amount of force in both directions. If the door is difficult to move in either or both directions, and the open and closing forces are not within the operating parameters, the door will need to be balanced and serviced. If the Door Balance is correct.....4. 4) The Force Level settings on the Control Board may need to be adjusted. This may happen if the door is ageing. 5) If all the previous checks are in order the Encoder may be faulty and the garage operator will need to be serviced.
Er	Error Programming Remote	**Cause**: All 64 remote slots are occupied. **Remedy**: No further remotes can be programmed to the controller. In order to add new remotes it will be necessary to delete some to make space or add an external receiver.
HL	Heavy Load	**Cause**: The operator has detected that the lifting force is greater than the allowed maximum. This could be as a result of an increase in the door's friction, incorrect door specs or possibly a broken door spring. **Remedy**: *Caution: This error message indicates that the door is too heavy and that the operator is unable to lift it. Disengaging the door via the Manual Release Mechanism could result in the door dropping fast and could cause damage or injury!* Disengage the door slowly and with great caution. Manually open and close the door to establish the weight. If it is difficult to lift, the door will need to be repaired before reconnecting it to the operator.
Cb	Check Balance	**Cause**: The door has gone out of balance, usually as a result of either one or both of the door torsion springs being broken. **Remedy**: Disconnect the door from the operator and open and close it manually. If moving the door in one direction is more difficult than the other direction then the door will need to be repaired before reconnecting it to the operator.

ERROR CODE	MEANING	CAUSE & REMEDY
E1, E4	Drive Error	**Cause:** The Control Board is potentially damaged/faulty. **Remedy**: Try activating the door again. If the fault persists, return the Control board for repair/replacement.
Fu	Fuse Blown	**Cause**: The 20A fuse on the Control Board has blown. **Remedy**: The fuse may have blown due to excessive forces being applied during the door operation. Ensure that the door is moving easily and is balanced and replace the fuse with a new 20A fuse. If the fault persists, return the Control Board for repair/replacement.
di	Motor Disconnect	**Cause**: The Control Board has detected a motor disconnection. **Remedy**: Check that the motor wires are correctly connected to the Control Board. If the fault persists, return the Control Board for repair/replacement.
nL	No Limits	**Cause:** Limits not programmed. **Remedy:** Program the limits.

WARRANTY

DACE warrants that LUX DC12 operators will be free from defects in material and workmanship for a period of 24 months of operation. Where operational data is not available, the warranty claim must be accompanied by the original invoice. In the event that both operational data and the original invoice are not available the warranty will be deemed to have been in effect from the date of manufacture. This warranty only covers the gearbox and onboard controller, it excludes any other products that might have been supplied with the operator such as a transformer, battery or beams (warranty information regarding products may be found in the installation guide pertaining to each product). This warranty explicitly only covers the repair, components and labour carried out at DACE, all other costs will be for the account of the purchaser.

This warranty does not apply if:

- the operator was subjected to misuse,
- the operator was installed contrary to the specifications provided in this manual,
- any attempt has been made to repair the goods by any workshop and/or person not authorised to do so by DACE or
- if goods have been repaired using components not tested, passed or authorised by DACE

This warranty does not cover:

- any Acts of God, including lightning, hail, water, power surge, insect damage, corrosion,
- the transport, or costs associated with the transport, of the defective product to a designated DACE repair centre,
- contractor or other third party costs
- any other costs that may have been incurred by the purchaser or any other party or
- on site repairs.

This warranty is a factory warranty, all goods will be repaired at the factory or one of the DACE designated repair centres.

In the case of international customers, the defective product must be returned to the supplier from where the product was purchased WITH PROOF OF PURCHASE FROM THAT SUPPLIER.

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