



**LC6® Smart Dimming Controller**

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Installation and Operation Guide

## Important Safety Precautions

1. Read the full installation manual before proceeding to install the device. Retain all safety and operating instructions for future use.
2. Proper use of this device requires connecting the AC input GROUND terminal to earth.
3. Operate this device only from the type of power source indicated on the marking label. If you are not sure of the type of power source supplied consult your local power company.
4. The electrical connections of this device must be made by a qualified electrician.
5. Do not handle this unit with wet hands.
6. To reduce the risk of electric shock, never remove the cover of this unit. No user serviceable parts inside the unit.
7. Ensure that the electrical power outlet you are using to power this unit is easily accessible in case of fire or short circuit.
8. Make sure you provide adequate space, at least 4 inches (10cm), around the system for ventilation when you setup your work area. Never insert objects of any kind into the controller ventilation openings.
9. This device was designed to work for the purposes it was designed for. Connecting this device to other type of load rather than PDLC films may damage the device. Gauzy Ltd. Will not be responsible for any damaged cause by inappropriate usage of this device.
10. If any smell of burning or smoke are detected from this unit during operation, the unit should be switched off and disconnected from the power source. The unit should be checked by a qualified technician before reuse.
11. This device is for indoors use only.
12. Do not install this device on wet surfaces or where contact with or immersion in water is a possibility.
13. This device is to be used in a permanent connection.

## 安全注意事项

1. 安装此设备前请认真阅读完安装手册，并妥善保管好所有安全操作说明以备将来使用。
2. 请确保接入的交流电地端接地。
3. 此设备只能在标签指示的电压电流下进行操作。 如果不确定电压电流，可以咨询当地的电力公司。
4. 此设备的安装连接必须由专业电工进行操作。
5. 请不要湿手操作。
6. 为减少触电的风险，请永远不要移除此设备的保护盖。没有可维修的零部件在里面。
7. 确保用于为此设备供电的电源插座在发生火灾或短路时易于触及。
8. 确保在设置工作区域时，在系统周围提供足够的空间，至少4英寸（10厘米）以便通风。切勿将任何物体插入控制器的通风口。
9. 此设备是专项使用，如若将设备连接到其他类型的负载而不是液晶调光膜可能会损坏该设备。 Gauzy公司对由于不当使用本设备而造成的任何损坏不负责。
10. 如果在操作期间，闻到任何烧焦气味或烟味，应关闭本机并断开与电源的连接。 在重新使用前，应由专业技术人员检查设备。
11. 此设备仅适用于室内。
12. 请勿将本设备安装在潮湿的表面上，或任何可能与水接触或浸入水中的地方。
13. 此设备用于固定连接。

## Consignes de sécurité importantes

1. Lisez le manuel d'installation complet avant de procéder à l'installation de l'appareil. Conservez toutes les consignes de sécurité et de fonctionnement pour un usage futur.
2. L'utilisation correcte de cet appareil nécessite la connexion de la prise entrée du secteur à la terre.
3. Veillez à utiliser uniquement le type de source d'alimentation indiqué sur l'étiquette. Si vous n'êtes pas sûr du type de source d'alimentation fourni, consultez votre compagnie d'électricité locale.
4. Les connexions électriques de cet appareil doivent être effectuées par un électricien qualifié.
5. Ne pas manipuler cet appareil avec les mains mouillées.
6. Afin de réduire le risque d'électrocution, ne jamais retirer le couvercle de cet appareil. Aucune pièce réparable ne se trouve à l'intérieur de cette unité.
7. Assurez-vous que la prise d'alimentation électrique que vous utilisez pour alimenter cet appareil est facilement accessible en cas d'incendie ou de court-circuit.
8. Assurer un espace adéquat d'au moins 4 pouces (10 cm), autour du système de ventilation lorsque vous configurez votre zone de travail. Ne jamais insérer d'objets d'aucune sorte dans les ouvertures de ventilation du contrôleur.
9. Cet appareil a été conçu expressément pour le fonctionnement auquel il a été dédié. La connexion de cet appareil à un autre type de charge plutôt que de films PDLC peut endommager l'appareil. Gauzy Ltd ne sera pas responsable pour tout dégât causé par l'usage inapproprié de cet appareil.
10. Si une odeur de brûlure ou de fumée sont détectées de cet appareil durant le fonctionnement, il faut éteindre l'appareil et le débrancher de la source d'alimentation électrique. L'appareil doit être vérifié par un électricien qualifié avant le nouvel usage.
11. Cet instrument convient à un usage intérieur uniquement.
12. Ne pas installer cet appareil sur des surfaces humides ou sur des surfaces avec possibilité d'inondation.
13. Cet appareil doit être branché en permanence.

## Precauciones de seguridad importantes

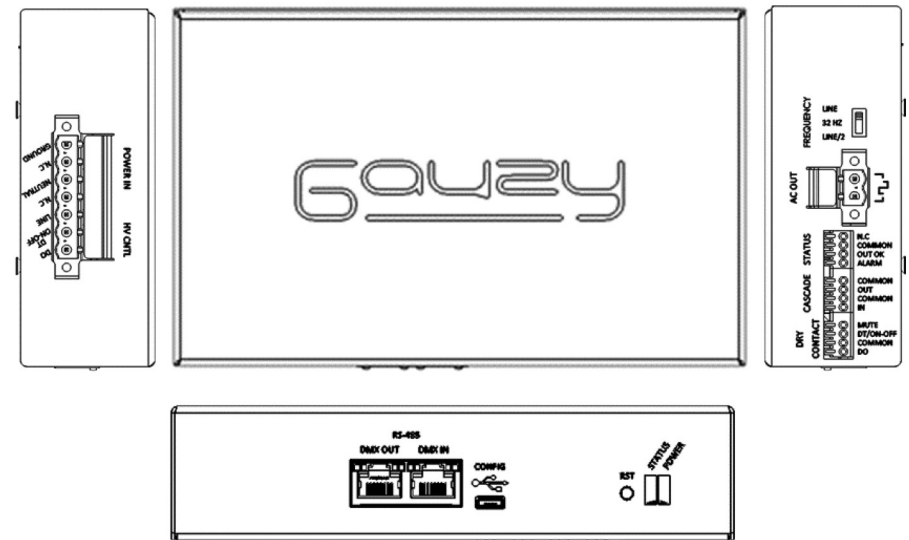
1. Lea el manual de instalación completo antes de proceder a instalar esta unidad. Conserve todas las instrucciones de seguridad y funcionamiento para su uso futuro.
2. El uso adecuado de este dispositivo requiere conectar el terminal de tierra de la entrada de AC a tierra.
3. Utilice este dispositivo sólo con el tipo de corriente indicado en la etiqueta. Si no está seguro del tipo de alimentación suministrada, consulte a su compañía eléctrica local.
4. Las conexiones eléctricas de este dispositivo deben ser realizadas por un electricista calificado.
5. No toque esta unidad con las manos mojadas.
6. Para reducir el riesgo de descarga eléctrica, no quite la cubierta de esta unidad. No hay piezas reparables por el usuario dentro de la unidad.
7. Asegúrese de que la toma de corriente eléctrica que se utiliza para alimentar esta unidad es de fácil acceso en caso de incendio o cortocircuito.
8. Asegúrese de proporcionar un espacio adecuado, por lo menos 4 pulgadas (10 cm), de todo el sistema de ventilación durante la configuración de su área de trabajo. Nunca introduzca objetos de ningún tipo en las aberturas de ventilación del controlador.
9. Este dispositivo fue diseñado para trabajar para los fines que fue diseñado. Conectando este dispositivo a otro tipo de carga en lugar de películas de PDLC puede dañar el dispositivo. Gauzy Ltd. no será responsable de cualquier daño causado por el uso inadecuado de este dispositivo.
10. Si algún olor a quemado o humo se detectan de esta unidad durante el funcionamiento, la unidad debe ser apagada y desconectada de la fuente de alimentación. La unidad debe ser revisada por un técnico cualificado antes de volver a utilizarla.
11. Este dispositivo es para uso en interiores solamente.
12. No instale este dispositivo sobre superficies mojadas o donde el contacto con o la inmersión en agua es posible.
13. Este dispositivo es para ser utilizado en una conexión permanente.

Gauzy's Smart LCG® Dimming Controller is a state of the art electronic appliance with many configuration options to fit in different installation scenarios. This application note will only cover the Dimmer functionality.

## The Dimmer functionality of the controller can be achieved in two different ways:

- High voltage control interface – where the control commands are performed by switching the AC net 110/220V LINE to the input DT and DO terminals.
- Dry contact control interface – This feature requires Two external dry contacts or a regular wall switch for operation. The advantage of this approach is that the control wires do not carry any voltage.

## Pinout



**Note:** Some features may be available only on specific models. Refer to the table below

### AC Mains & High Voltage Control

Terminal Name	Terminal Number	Description
Ground	7	AC mains input. Connect to the input 110/220 VAC Ground
Neutral	5	AC mains input. Connect to the input 110/220 VAC neutral
Line	3	AC mains input. Connect to the input 110/220 VAC line
DT - ON/OFF	2	High voltage dimmer up / ON-OFF. When the unit operates in dimmer mode, applying AC mains LINE on this terminal causes the LCG® to gradually change from opaque to transparent state. When the unit operates in ON/OFF mode, applying AC mains LINE on this terminal causes the LCG® to fully change from opaque to transparent state. When disconnected the shutter is in opaque state.
DO	1	High voltage dimmer down. (Available only on Dimmer Models). When the unit operates in dimmer mode, applying AC mains LINE on this terminal causes the LCG® to gradually change from transparent to opaque state.
N.C.	4, 6	Not connected.

### Dry Contact Control

Terminal Name	Terminal Number	Description
DT - ON/OFF	8	Dry contact dimmer up / ON-OFF. When the unit operates in dimmer mode, connecting this terminal with the adjacent COMMON terminal through an external dry contact causes the LCG® to gradually change from opaque to transparent state. When the unit operates in ON/OFF mode, connecting this terminal with the adjacent COMMON terminal through an external dry contact causes the LCG® to fully change from opaque to transparent state. When disconnected the shutter is opaque state.
DO	10	Dry contact dimmer down. (Available only on Dimmer Models). When the unit operates in dimmer mode, connecting this terminal with the adjacent COMMON terminal through an external dry contact causes the LCG® to gradually change from transparent to opaque state.
MUTE	11	Dry contact dimmer mute. (Available only on Dimmer Models). When the unit operates in dimmer mode, connecting this terminal with the adjacent COMMON terminal through an external dry contact causes the LCG® to instantly shut down. By disconnecting this terminal again LCG® will return to the previous state before mute was applied.
COMMON	9	Common GND terminal. Connect through an external dry contact to the mating function terminal.

### RS485/DMX Control (available on specific models)

Terminal Name	Terminal Number	Description
DMX - IN	D-Type Pin 2	DMX input connector / RS485 interface. When installed in a DMX system this is the input connector in the DMX chain.
DMX - OUT	D-Type Pin 3	When installed in a DMX system this is the output connector in the DMX chain and should be connected to the next device in-line.

### Cascade Interface

Terminal Name	Terminal Number	Description
IN	12	Module cascade input. Connect to CASCADE OUT of the MASTER unit to cascade multiple devices with a single control.
OUT	14	Module cascade output. Connect to CASCADE IN of the SLAVE unit to cascade multiple devices with a single control.
COMMON	13, 15	Common GND terminal. Connect between two cascaded units

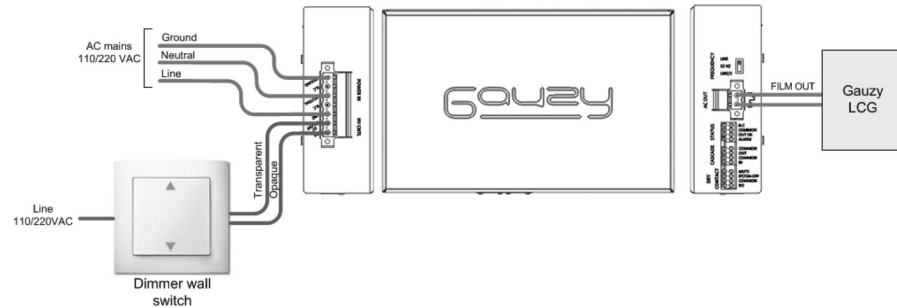
### Status Interface

Terminal Name	Terminal Number	Description
ALARM	16	Alarm output.
OUT OK	17	Output OK Signal.
COMMON	18	Common GND terminal.
N.C.	19	Not Connected

### LCG® Film Interface

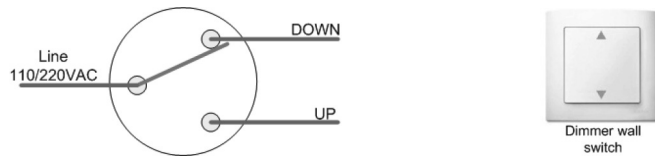
Terminal Name	Terminal Number	Description
AC OUT1 AC OUT2	20, 21	Film output voltage. These two terminals should be connected to the LCG®.

## High Voltage Control Interface



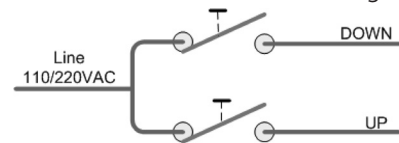
## High voltage Dimming control

1. Before proceeding make sure the main AC voltage is disconnected. Any electrical connection should be done by a qualified electrician.
2. Connect AC mains to the LINE, NEUTRAL and GROUND terminals respectively.
3. Connect AC mains LINE to DT-ON/OFF & DO terminals through a regular 3-way switch. This switch is commonly used for electrical curtains. Below are some examples:



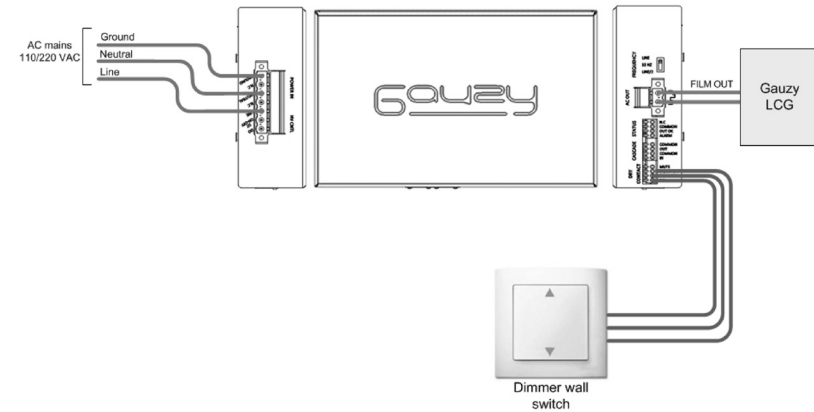
4. Connect output terminals AC OUT 1, AC OUT 2 to the LCG®.
5. Turn the AC mains ON again.  
**During this step please make sure the switch is in the neutral position, otherwise the unit can enter into a latched up state. If something like this happens remove the AC mains, move the switch to the neutral position and restore the power supply to the unit.**
6. Toggling the switch to the UP position will dim the LCG® to transparent state. When releasing the switch, the current transparency state will be preserved.
7. To dim the LCG® to the translucent position, toggle the switch to the DOWN state.

**Note:** The same functionality can be achieved by connecting the DT & DO terminals to the AC LINE through relays.



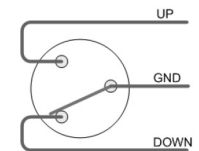
**Note:** Do not close simultaneously more than one dry contact. Operation under this condition is not guaranteed.  
Dry Contact Control Interface

## Dry contact Dimmer control



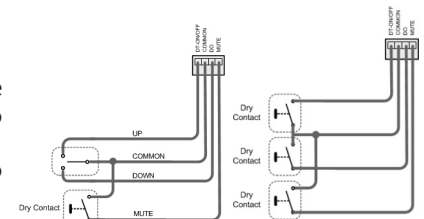
1. Before proceeding make sure the main AC voltage is disconnected. Any electrical connection should be done by a qualified electrician.
2. Connect AC mains to the LINE, NEUTRAL and GROUND terminals respectively.
3. Connect terminals DT-ON/OFF & DO to COMMON through a dry contact or a 3-way switch. The dry contact might be controlled from a computer or a smart home system. Refer to the figure above.
4. Connect output terminals AC OUT 1, AC OUT 2 to the LCG®.
5. Connect the AC mains ON again  
**During this step please make sure the switch is in the neutral position, otherwise the unit can enter into a latched up state. If something like this happens remove the AC mains, move the switch to the neutral position and restore the power supply to the unit.**
6. Toggling the switch to the UP position will dim the LCG® to transparent state. When releasing the switch, the current transparency state will be preserved.
7. To dim the LCG® to the translucent position, toggle the switch to the DOWN state.

**Note:** The same functionality can be achieved by connecting terminals DT-ON/OFF & DO to COMMON through a 3-way switch as shown in the picture above. **Note:** Do not close simultaneously more than one dry contact. Operation under this condition is not guaranteed.



## MUTE Interface

When activating the MUTE interface, the LCG® will instantaneously toggle into opaque state.  
When deactivated, the LCG® will return to the previous transparency state.



## Frequency Switching

Gauzy's LCG® controllers have the capability to adjust the operating frequency of the LCG® to adapt itself and prevent flickering effects under certain lighting conditions. In addition to that, the lower the frequency used, less power is consumed by the LCG®.

The LCG® can work at the following settings:

1. LINE – LCG® operates at the line frequency and is synchronized to Line frequency. (50/60 HZ depending on country of use)
2. 32HZ – LCG® operates at a frequency of 32 Hz, and is not synchronized to the line
3. LINE/2 – LCG® operates at half the line frequency and is synchronized to the line frequency (25/30 HZ depending on country of use)

In order to define the operating frequency of the LCG® use the switch located at the side panel of the controller.

## General Installation Guidelines

- Before any initial step you do, read carefully this installation guide. Keep it for future use.
- After opening the product's package, make sure the device is in a good condition, and there is no breakage visible. If you have any doubt about the product's integrity, please contact Gauzy's support center.
- Before connecting the device for the first time, make sure the voltage and frequency of your AC network match the electrical specification of this unit.
- Before connecting this unit to the LCG®, make sure this controller model matches the LCG® electrical specification requirements.

- Proper use of this device requires connecting the AC input GROUND terminal to earth.
- The electrical connections of this device must be made by a qualified electrician.
- This device was designed to work for the purposes it was designed for. Connecting this device to other type of load rather than LCG® may damage the device. Gauzy Ltd. Will not be responsible for any damaged cause by inappropriate usage of this device.
- This device is for indoors use only.
- This device is to be used in a permanent connection.

The following table describes the wires and conductors that must be used for the installation

AC Input & HV Controls	At least 1mm <sup>2</sup> /16AWG Conductors rated for 110/220 VAC
Dry Contacts LV Controls	18 - 24AWG wires. Preferred solid conductors
AC OUT (Connection to LCG®)	At least 0.2mm <sup>2</sup> /24AWG conductors (*)

(\*) – Conductor thickness depends on the total area of LCG® connected and the distance of the LCG® to the controller

- The connection of the controller to the electrical cabinet always should be done through a circuit breaker with a rating of 6-10A type B
- The device is suitable for wall mounting, or to be installed inside an electrical cabinet.
- The installation should always allow enough place for natural ventilation of the unit.
- Never leave wire conductors exposed. If needed use isolation tape to cover the unit's terminals



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