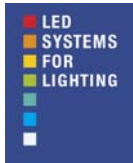


# Transparent Displays



Application document for

**LINEARlight LM01A**  
**LINEARlight Flex LM10A**  
**LINEARlight Colormix LM01M-RGB**  
**LINEARlight Colormix Flex LM10L-RGB**

## 1. Description



Display lighting with edge coupling

For the visual display of decorative effects or information in transparent glass.

The structure in a transparent material is illuminated by means of light coupling with a OSRAM LINEARlight. The rest of the material remains transparent and without illumination.

## 2. Construction



Data sheets on:  
<http://www.osram.com/products/led-systems>

**Note:** Please read the product data sheets for the LINEARlight LM01A, LINEARlight Flex LM10A, LINEARlight Colormix LM01M-RGB or LINEARlight Colormix Flex LM10L-RGB (subject to requirements) carefully. They contain important detailed instructions on safety and installation.

Also please read the instructions on the electrical installation of the operational devices: OPTOTRONIC® "Technical Guidelines" and the data sheets for the associated power supply units. Please refer to item 3f for the right power supply unit for each LED module.



Acrylic glass with company name

Components of structure:

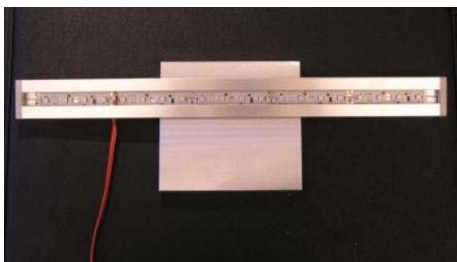
- Panel made of acrylic glass (PMMA) with applied structure

# Transparent Displays



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Holder profile with LED module

b) Holder profile for LED modules and acrylic glass panel

## 3. Products



LINEARlight Flex LM10A

a) LED modules with terminals

### LINEARlight LM01A

This linear LED module has a width of 10 mm, a total length of 448 mm and can be divided into units of 4 LED.

### LINEARlight Flex LM10A

This flexible LED tape with a self-adhesive back has a width of 10 mm and a total length of 8400 mm. It can be divided into units of 10 LED. The contacts are made by soldering cables to the solder pads provided.

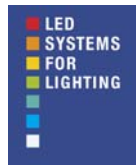
### LINEARlight Colormix LM01M-RGB

Every LED in this linear LED module contains with a red, green and blue chip. This arrangement permits dynamic color applications in the smallest of spaces. It has a width of 11.5 mm, a total length of 450 mm and can be divided into units of 10 LED.

### LINEARlight Colormix Flex LM10L-RGB

This flexible LED tape with a self-adhesive back has a width of 11.5 mm and a total length of 4000 mm. It can be divided into units of 10 LED. The contacts are made by soldering cables to the solder pads provided.

# Transparent Displays

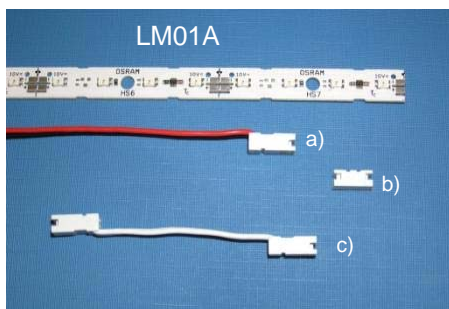


Application document for

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**LINEARlight Colormix Flex LM10L-RGB**

For the LINEARlight LM01A and LM01M-RGB, an OSRAM CONNECTsystem is available which has been developed specifically for these products.

**Note:** The connection to the power supply unit and between modules is possible either with the CONNECTsystem or with a solder connection:



LINEARlight LM01A and CONNECTsystem

for LM01A

- a) LM-2PIN            Power supply unit for operational device
- b) LM-CONN            Plug-in connector (rigid)
- c) LM-CONN-50            Plug-in connector (flexible)

for LM01M-RGB

- LM-4PIN            Power supply unit for operational device

Given the differences in the coefficients of heat expansion between the holder profiles, LED modules and plug-in connectors, the LED modules and holder profiles have to be mounted with a small amount of play between them.

f) Power supply units

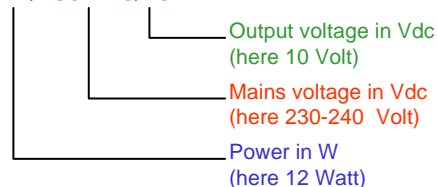
The power supply units to be used will depend on the type and length of the LINEARlight. The adjacent table will help with selection.

LINEARlight	ECG 10 V	ECG 24 V
LM01A	OT06 OT10 OT12 OT50	
LM01M-RGB LM10A LM10L-RGB		OT06 OT20 OT75

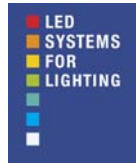
LINEARlight LM01A runs on 10 V. LINEARlight Colormix LM01M-RGB, LINEARlight Flex LM10A and LINEARlight Colormix Flex LM10L-RGB run on 24 V.

Categories of OPTOTRONIC® operational devices:

OT 12/230-240/10



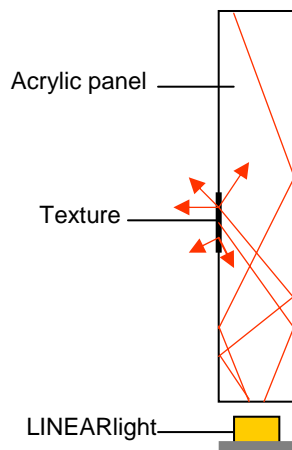
# Transparent Displays



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## 4. Treatment of acrylic glass



Panels made of PMMA are particularly suitable. Röhm GmbH & Co. KG, in Darmstadt ([www.roehm.de](http://www.roehm.de)), offers such panels under the company proprietary name of PLEXIGLAS® XT 20070 or PLEXIGLAS® GS 233. ATOGLAS ([www.atoglas.com](http://www.atoglas.com)) also offers such panels under the names of Atuglas® CN transparent (10010000) or Atuglas® EX transparent (20010000).

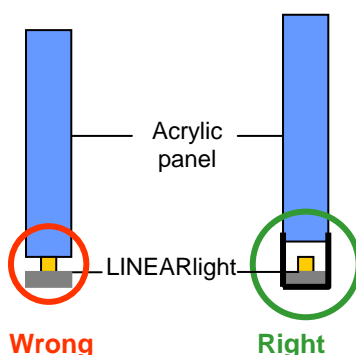
The acrylic panel (available in sizes up to 3050 mm x 2030 mm) has textures applied which scatter and decouple the light.

The texture is applied by the following means:

- Milling
- Laser beams
- Screen printing
- Sand blasting.

**Note:** The acrylic panel can also be substituted by a glass panel which has the texture applied by laser or milling.

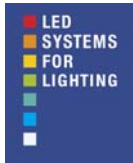
## 5. Installation



The holder profile of the display or illuminated sign must be made of sturdy material such as metal or acrylic. Metal offers the advantage of better heat dissipation if the module is fitted in direct contact with the holder profile. Its purpose is to connect the LED module and the acrylic panel with each other.

**Note:** It is important that the design of the holder profile does not result in the acrylic panel exerting any mechanical load on the LED modules. This can be prevented by use of spacers or fitting the LED module at the side.

# Transparent Displays



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## Step 1

The LED modules are cut to the length of the holder profile or, in the case of rigid LINEARlights, extended with the aid of the plug-in connector or soldering.



Cutting point  
and solder pad

**Note:** Make the cuts only at the places marked with a “✂” symbol.

## Step 2

To connect the LINEARlight Flex and LINEARlight Colormix Flex to the power supply unit, solder two cables for infeed voltage to the solder points marked by a plus and minus (+/-) either at the ends or in the middle. The rigid LINEARlights can be connected either by means of plug-in connectors or soldering.

**Note:** For further electrical data and circuit instructions, please refer to the data sheet.

LINEARlight  
LM01A

## Step 3

Fastening:

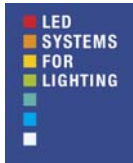
**Version a:**

LINEARlights Flex LM10A and Colormix Flex LM10L-RGB are supplied with self-adhesive backs for fastening to the holder profile.

**Version b:**

The rigid LINEARlights LM01A and Colormix LM01M-RGB are fastened using either adhesive tape or size-M4 screws inserted through the holes provided (Ø 4.05 mm).

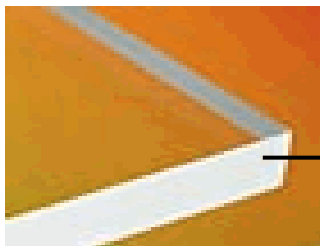
# Transparent Displays



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## Step 4



Adhesive aluminium tape

Acrylic glass panel with fitted reflector

In order to reduce light losses at the edges, it is recommended that the edges at which no light is coupled be sealed with a highly reflective material such as adhesive aluminium tape or white adhesive tape. These types of adhesive aluminium tape are available from most advertising printers.

**Note:** Even the slightest scratches, fingerprints or glue marks on the acrylic panel make cause imperfection. The panels can be cleaned with all standard washing-up liquids and water.

## Step 5



Transparent display without the lighting switched on

Then connect the LED module to a corresponding OSRAM OPTORONIC® operational device and connect all the separate components.

**Note:** For dynamic color mixing with the LINEARlight Colormix LM01M-RGB and LINEARlight Colormix Flex LM10L-RGB, the OT RGB 3-Channel DIM and OT RGB Sequencer DIM operational devices are available.