Gradient™ GRX Series

Tokistar’s GRX Series is a highly efficient LED luminaire for use in grazing interior and exterior walls. Water proof connectors link fixtures and bring 24 VDC power to the system for plug and go simplicity.

GRX may be dimmed from industry standard protocols of DMX or 0-10 VDC. A single dimmer pack can control entire zones of up to 55 independent fixtures.

O’Links

O’Links are single and 3-LED fixtures designed to light columns and conform to curves.

The system operates from constant-current power supplies with integral 0-10 VDC dimming on board.

Fixtures positioned at the sides of this wall treatment evenly illuminate features and add depth to the textures.

GRX Series boldly illuminates the top of this building.

Contents

GRX Series | 4-7
GRHB Series | 8-11
O’Links | 12-13
I’Links | 14-15

Cover:
Gradient Towers Above The Rest
Project: Concourse Project Singapore
Lighting Design: Lighting Planners Associates
TOKISTAR LIGHTING | 3

Gradient™ GRHB Series

Tokistar’s Gradient HB is a very low-profile LED luminaire for use in wall grazing interiors. We offer a wide range of color temperatures, beam angles and accessories to meet different design objectives.

Mounting options include fixed or pivoting brackets. Optional louvers and a glare guard keep light sources discreetly hidden from view. LED Drivers have full range dim-to-off capability.

I’Links

I’Links are single LED modules of GRHB with flexible wires connecting them in series. Each module can be fitted with the same options available with GRHB Series.
Gradient™ GRX Series

Tokistar’s GRX Series high-output LEDs ensure superior performance in both interior and exterior applications. The system is wet-location listed with an IP66 rating.

Male and female connectors provide convenient and reliable wiring. Various lengths of GRX can be combined to tailor fixtures to the unique requirements of each project.

Each fixture is fitted with adjustable brackets to precisely focus light. There are three different fixture styles to accommodate their location and reduce glare.

Series GRX
The standard style is suitable for applications where the fixture is concealed behind a ledge and LEDs are not seen directly.

Series GRX-GG
This style includes a linear glare guard for applications where the fixture is not concealed and viewed directly.

Series GRX-GGL
A linear glare guard combined with vertical louvers eliminate glare from front and side-viewing perspectives.

Specifications

- **Extrusion** is Anodized Aluminum
- **Light Sources** are 3 Watt / 24 VDC LEDs
- **Cover Plate** is Anodized Aluminum
- **Pivoting Bracket and End Cap** are Stainless Steel
- **PVC Insulation** surrounds two #18 AWG power lines and two #22 AWG logic lines
- **Connector** is Weather-Resistant Nylon with IP67 Rating

Wet-Location Listed
IP66 Rated
Specify by Catalog Number

<table>
<thead>
<tr>
<th>Fixture Style</th>
<th>LED Color</th>
<th>Lens Style</th>
<th>Fixture Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Style</td>
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<td>Code</td>
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<tr>
<td>GRX</td>
<td>Standard</td>
<td>2700</td>
<td>15D</td>
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<tr>
<td>GRX-GG</td>
<td>Glare Guard</td>
<td>3000</td>
<td>15D</td>
</tr>
<tr>
<td>GRX-GGL</td>
<td>Glare Guard &amp; Louvers</td>
<td>4000</td>
<td>15D</td>
</tr>
</tbody>
</table>

GRX Standard

- GRX-2700/3000/4000-15D-300 12” (300 mm) = 12 watts
- GRX-2700/3000/4000-15D-600 24” (600 mm) = 24 watts
- GRX-2700/3000/4000-15D-1200 48” (1200 mm) = 48 watts

GRX-GG with Glare Guard

GRX-GGL with Glare Guard & Louvers
**System Layout**

**Dimming Diagrams**

The maximum number of fixtures connected to a dimmer box is 55 pieces. This limitation applies to the combination of all fixture lengths of 12", 24" and 48".

**Non-Dimming Diagrams**

The maximum load of fixtures from each output of a driver is 96 watts. The maximum run length of a secondary circuit including fixture lengths, feed connector and extension cables is not to exceed 80 Ft. (24 M).

**Connectors**

**Part#: GRX-CON**
In non-dimming applications each run of GRX receives this feed connector with a 10 Ft. lead.

**Part#: GRX-EXT-1M (3 Ft. length)**
**Part#: GRX-EXT-3M (10 Ft. length)**
These extension cables may be added to GRX-CON and GRX-Y-CON connectors.

**Part#: GRX-Y-CON**
In dimming applications this Y-Connector is attached to opposing ends of fixtures.

**Part#: GRX-EC**
End Caps insulate a female connector at the end of a run.
Power Supply/Dimming

24 VDC LED Driver

Part#: LDR24-192
GRX Series is ETL Wet-Location Listed when operated from our 24 VDC LED Driver. The input is universal ranging from 100 to 277 VAC 50/60 Hz and has two independent 96 watt outputs.

The unit has wiring compartments for splicing on input and output leads, and can be connected directly to conduit. The enclosure is suitable for wet locations and rated IP65.

GRX Dimmer Box

Part#: GRX-DP
GRX Series can be dimmed with industry-standard DMX or 1-10 VDC protocols. A Dimmer Box can control entire zones of up to 55 independent fixtures. GRX Dimmer Boxes are ETL Listed and suitable for wet locations. Dimensions: 12.25" x 12" x 4.5"

Photometrics

Foot Candle Summaries

Test Criteria:
Lamp: 3 Watt /160 Lm/3000K
Optics: 15 Degree Lens
LED Spacing: 3" O.C. (75 mm)
Length: 72" (1.8 M)
Reflectance Values: Ceiling: 80% / Wall 50% / Floor 20%

Conversion Factors:
Lamp: Multiply by .94 for 3 Watt/150 Lm/2700K
Lamp: Multiply by 1.12 for 3 Watt/180 Lm/4000K
Lux Value: Multiply Footcandle Value by 10.764 to Determine Lux Value

Light Distribution

LED Capacity
3 Watt LEDs: 64 Total / 32 per output
Gradient™ GRHB Series

Tokistar’s Gradient GRHB is a compact LED luminaire for use in wall grazing interiors. The system incorporates high-output LEDs installed within an extruded aluminum housing. Fixtures operate from our dimmable constant-current LED Drivers.

Gradient HB has a variety of options designed toward meeting specific lighting objectives.

- Fixture lengths range from 2 to 18 LEDs with socket spacings of 2.4”/60mm, 3”/75mm and 4”/100mm.
- The optics package includes 2.1 watt LEDs with an 8°, 15° or 40° x 15° spread lens.
- Color temperatures include 2700, 3000 and 4000K.
- Mounting options include fixed or pivoting brackets.
- Optional louvers and a glare guard keep light discreetly hidden from view.

Honeycomb Louver
This louver adds very little to the fixture’s overall profile and eliminates glare from many angles. It can be used with fixed or adjustable brackets.

Vertical Louver
Vertical louvers block light from front and side viewing angles. They can be used with fixed or adjustable brackets.

Glare Guards
Glare guards slide and lock onto the fixture, preventing glare from many angles. They are for use with adjustable brackets only.

Fixtures positioned within windows warmly illuminate this entire block of storefronts.
Specify by Catalog Number

GRHB - 100 - 2700 - 15D - FB - VL

<table>
<thead>
<tr>
<th>LED Spacing</th>
<th>LED Color</th>
<th>Lens Style</th>
<th>Mounting Bracket</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Inch</td>
<td>Code Color</td>
<td>Code Style</td>
<td>Code Style</td>
<td>Code Style</td>
</tr>
<tr>
<td>60 2.4&quot;</td>
<td>2700 2700K</td>
<td>8D 8°</td>
<td>FB Fixed</td>
<td>VL Vertical Louver</td>
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<tr>
<td>75 3&quot;</td>
<td>3000 3000K</td>
<td>15D 15°</td>
<td>AB Adjustable</td>
<td>HL Honeycomb Louver</td>
</tr>
<tr>
<td>100 4&quot;</td>
<td>4000 4000K</td>
<td>SP Spread Lens</td>
<td></td>
<td>GG Glare Guard</td>
</tr>
</tbody>
</table>

Mounting Brackets

Mounting options include fixed or adjustable brackets. Two brackets are required per fixture.

Space Requirements

For proper air flow, the dimensions indicated are required to prevent heat build up.

Specifications

- **Extrusion** is Black Anodized Aluminum
- **Light Sources** are 2.1 Watt LEDs operating at 700mA
- **Cover Plate** is Black Anodized Aluminum
- **End Caps** are Polycarbonate
- **Lead Wires** are #18 AWG x 2
GRHB Photometrics

Foot Candle Summaries

Test Criteria:
Lamp: 2.1 Watt / 160 Lm/3000K
LED Spacing: 2.4” O.C. (60 mm)
Length: 120” (3 M)
Reflectance Values: Ceiling: 80% / Wall 50% / Floor 20%

Conversion Factors:
Lamp: Multiply by .94 for 2.1 Watt/150 Lm/2700K
Lamp: Multiply by 1.12 for 2.1 Watt/180 Lm/4000K
LED Spacing: 3” O.C. (75 mm) multiply by 0.8
LED Spacing: 4” O.C. (100 mm) multiply by 0.7
Lux Value: Multiply Footcandle Value by 10.764 to Determine Lux Value

To minimize light scallops, we suggest the following:
2.4” LED spacing: Distance from wall 2.4”
3” LED spacing: Distance from wall 3”
4” LED spacing: Distance from wall 4”

Light Distribution

[Diagrams of light distribution for different lens angles]

40’ x 15’ Spread Lens
15’ Lens
8’ Lens
GRHB/O’Links/I’Links LED Driver
LDRCC-40 Dimmable LED Driver

Our constant current LED Driver operates on the PWM method and accepts input from 0-10 VDC dimming controls. The driver has full range dim-to-off capability.

The input is universal ranging from 100 to 277 VAC 50/60 Hz. The driver may accept wiring from the ends, or be mounted to an enclosure and accept wiring from below.

**LDRCC-40 Specifications**
- **Input Range:** 100~277 VAC
- **Frequency Range:** 50/60 Hz
- **Output:** 3-57 VDC
- **Current:** 700mA
- **Max. Output Power:** 40W
- **Protection:** Overload, Overcurrent, Short Circuit, Over Temperature, Mis-Wiring protection (auto shutdown)
- **Operating Temperature:** -40ºC to +50ºC

**Mechanical Specifications**
- **Dimensions:** 5” x 2.6” x 1”
- **Weight:** 38 lbs / 170g
- **Enclosure Rating:** IP21
- **Mounting:** Flange Mount/Stud Mount
- **Input/Output Connectors:** Wago 253/16-20AWG

**Safety Standards**
- Listed to UL8750, UL Class 2, Class P
- EMI Compliance: FCC 47CFR Part 15 Class B

**LED Capacity**
- 2 to 18 GRHB 2.1 Watt LEDs
- 1 to 18 O’Links / I’Links 2.1 Watt LEDs

Up to 30 LDRCC-40 LED Drivers can be connected in series from a single 0-10 VDC source. The maximum distance from the 0-10 VDC source to the last LED driver is 250 feet/75 meters based upon the use of #18 AWG shielded cable.

For applications operating from DMX, Dali or other protocols, check with the dimmer manufacturer to provide a suitable interface to generate a 0-10 VDC signal.

Dimming Control

Up to 30 LDRCC-40 LED Drivers can be connected in series from a single 0-10 VDC source. The maximum distance from the 0-10 VDC source to the last LED driver is 250 feet/75 meters based upon the use of #18 AWG shielded cable.

For applications operating from DMX, Dali or other protocols, check with the dimmer manufacturer to provide a suitable interface to generate a 0-10 VDC signal.
O’Links for Outdoor

O’Links are compact fixtures designed for use in confined spaces and curved areas. High-output LEDs ensure superior performance in both interior and exterior applications.

O’Links are available in single or 3-LED module versions. Light sources are 2.1 watt LEDS and each fixture is fitted with adjustable brackets to precisely focus light. Male and female connectors provide convenient and reliable wiring.

The system is wet-location listed with an IP66 rating. Optional louvers and glare guards prevent glare from many different viewing perspectives.

Series OL
The standard style is suitable for applications where the fixture is concealed behind a ledge and LEDs are not seen directly.

Series OL-GG
This style includes a linear glare guard for applications where the fixture is not concealed, and viewed directly.

Series OL-GGL
A linear glare guard combined with vertical louvers eliminate glare from front and side-viewing perspectives.

Specifications

Extrusion is Anodized Aluminum
Light Sources are 2.1 Watt LEDs operating at 700mA
Cover Plate is Anodized Aluminum
Pivoting Bracket and End Cap are Stainless Steel
PVC Insulation surrounds two #18 AWG wires
Connector is Weather-Resistant Nylon with IP67 Rating

Wet-Location Listed
IP66 Rated
Connectors

**Part#: OL-CON-2M**
Each run of O’Links receives this feed connector with a 6.5 Ft. lead.

**Part#: OL-EXT-1M (3 Ft. length)**
These cables extend the distance between fixtures and OL-CON connectors to reach remote LED Driver locations.

**Part#: OL-EC**
End Caps insulate a female connector at the end of a run.

Power Supply & Dimming

**Part#: LDRCC-40 LED Driver**
An LDRCC-40 Dimmable LED Driver can operate up to 18 individual LED Modules connected in series. This unit has integral 0-10 VDC dimming capability on board.

The driver may accept wiring from the ends, or be mounted to an enclosure and accept wiring from below. Reference page 11 for further details.
okistar’s I’Links are a series of individual modules linked together and designed to conform to any shape. The system’s flexibility and high-output LEDs make it ideal for illuminating architectural details of all shapes and sizes. Fixtures operate from constant current drivers with 0-10 VDC on board dimming.

I’Links is uniquely designed to meet specific lighting tasks.
• A fixture may consist of 1 to 18 LEDs
• The optics package includes 2.1 watt LEDs with an 8˚, 15˚ or 40˚ × 15˚ spread lens.
• Color temperatures include 2700, 3000 and 4000K.
• Mounting options include fixed or pivoting brackets.
• Optional louvers and a glare guard keep light discreetly hidden from view.

Honeycomb Louver
This louver eliminates glare from many angles. It can be used with fixed or adjustable brackets.

Glare Guards
Glare guards slide and lock onto the fixture, preventing glare from many angles.

Vertical Louver
Vertical louvers block light from front and side viewing angles. They can be used with fixed or adjustable brackets.

Specifications

- **Extrusion** is Aluminum
- **Cover** is Polycarbonate
- **Light Sources** are 2.1 Watt LEDs operating at 700mA
- **End Plate** is Polycarbonate
- **Lead Wires** are #18 AWG x 2
**LED Color | Lens Style | Mounting Bracket | Options**

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
<th>Code</th>
<th>Style</th>
<th>Code</th>
<th>Style</th>
<th>Code</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>2700</td>
<td>2700K</td>
<td>8D</td>
<td>8˚</td>
<td>FB</td>
<td>Fixed</td>
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<tr>
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<td>3000K</td>
<td>15D</td>
<td>15˚</td>
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<td>SP</td>
<td>Spread Lens</td>
<td></td>
<td></td>
<td>GG</td>
<td>GG</td>
</tr>
</tbody>
</table>

**Specify by Catalog Number**

**IL - 2700 - 15D - AB - HL**

**Mounting Brackets**

Mounting options include fixed or adjustable brackets. One bracket is required per module.

**Adjustable Bracket**

**Fixed Bracket**

**Power Supply & Dimming**

**Part#: LDRCC-40 LED Driver**

An LDRCC-40 Dimmable LED Driver can operate up to 18 individual LED Modules connected in series. This unit has integral 0-10 VDC dimming capability on board.

The driver may accept wiring from the ends, or be mounted to an enclosure and accept wiring from below. Reference page 11 for further details.