

2.4" General Downlight (GDL)



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Whitegoods has developed a complete range of Downlights which utilize the form factor of LED to reduce even further their visual impact, and of course they all hold true to our constant principles.

Our Philosophy

- Reduction of detail
- Seamless architectural integration
- Logical, modular systems and families of products
- Ease of specification, installation and maintenance



2.4" General Downlights (GDL)

The Whitegoods GDL was designed to be an all-purpose, budget conscious solution where a small aperture downlight family with minimal ceiling depth requirement is preferred, for both . Flush lens downlight for high-angle illumination and cone reflector downlight for optimal brightness control, both available in wet location for showers and outdoors, and wallwash fixtures are used in multi-residential projects, hotels, restaurants and residences. Integral, shallow depth driver and housing combinations, as well as remote driver options expand the range and make it the choice when ceiling depth is at a premium.



2.4" General Downlight Round Flush Diffuser

Product details
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2.4" General Downlight Round Regressed Cone

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2.4" General Downlight Wall Wash

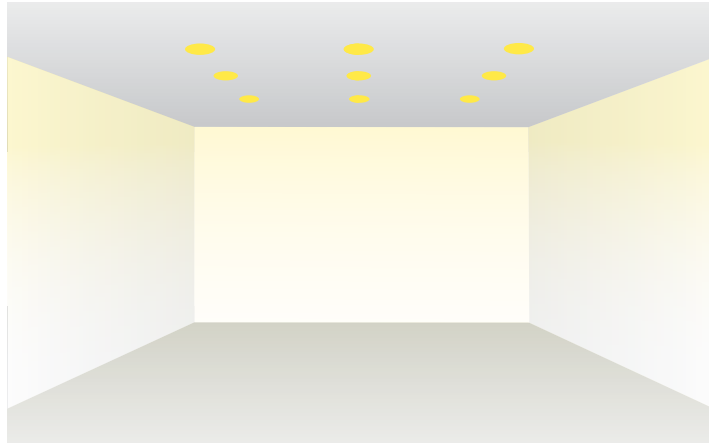
Product details

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Downlight Applications

Downlight



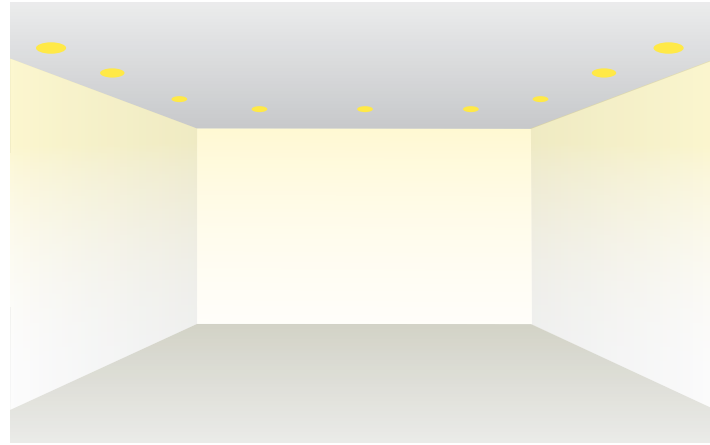
Perhaps the most common lighting solution utilized for general area lighting, arranging a group of lights in a grid to give even illumination to the surface below.

Of course, the popularity of a technique is not always a sign of best practice, and in this case it typically has more to do with economy and ease of implementation.

However, when applied to a space with some consideration it can be an effective technique. One thing to consider for this type of solution is "how much light will fall on the walls?". A space can have a lot of light being delivered into it, but if the walls are not sufficiently illuminated, there is a good chance that the space will feel gloomy, even though there is plenty of light falling on horizontal surfaces like desks or the floor.

Fortunately, many Whitegoods luminaires have good 'high angle distribution', which can help to deal with this common issue.

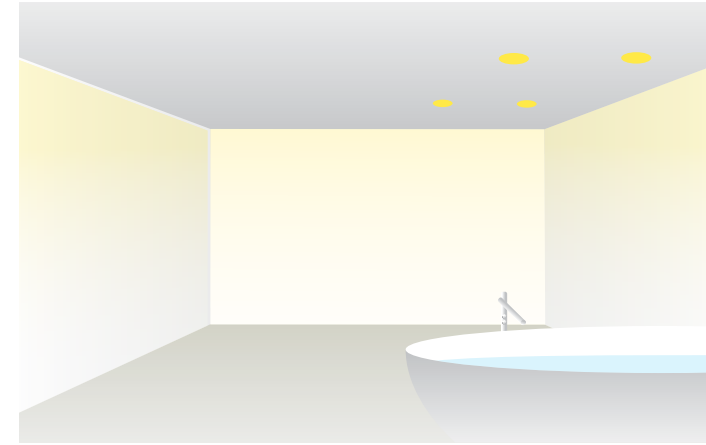
Washlight



The aim of wall washing, or in fact washing any surface with light (wall, ceiling or floor), is to create an even 'wash' of light across the surface. The wall wash is a great way to introduce light into a room as the brightness of the vertical surfaces around us play a crucial role in our perception of a space. You can use linear or point sources, and both will need to emit a wide, even beam of light which is directed towards the wall, to create the effect.

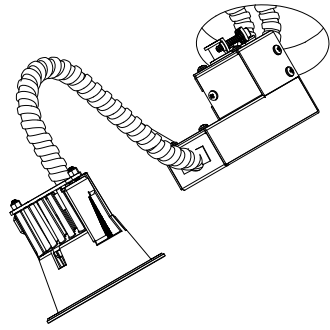
Downlights need to be correctly positioned, both in terms of distance from the wall, and their relative distance to one another. There are helpful guides for this in the Design Guide section of this book. Linear sources also need careful placing in terms of their offset from the wall, and can be used in a continuous format, or as a series of linear elements. A continuous linear source will achieve the most consistent overall effect, although downlights might better suit the architecture or construction method.

Wet Location

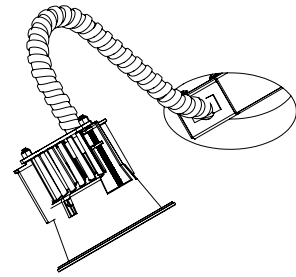


Most Whitegoods downlights are available in wet location for use outdoors as well as in showers and other applications where they may be exposed to moisture. Specialized silicon seal rings protect against moisture ingress, and are impervious to degradation caused by UV. See the specific product data sheet for availability on the specific model.

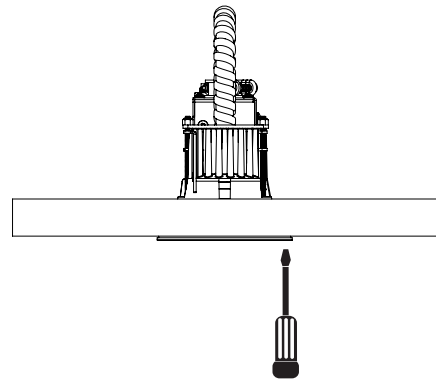
2.4" General Downlights (GDL) ease of Installation



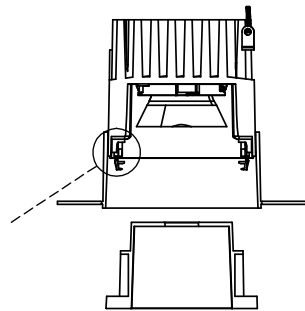
Pull Power Cable and Control Cable through the ceiling opening.



Insert the Driver Housing into the ceiling opening.



Screw the 2 philips head screws clockwise to engage the Ceiling Brackets.



Click the Cover into the Housing for final installation.



2.4" General Downlights (GDL)

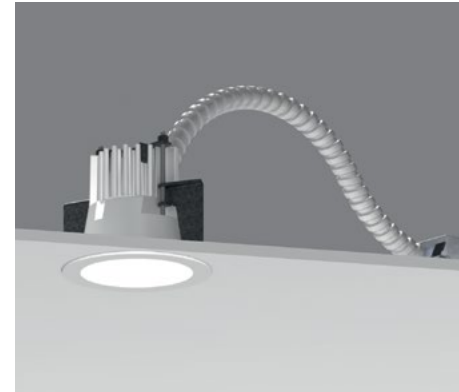
The **2.4" General Downlights (GDL)** family offers round flush, recessed and wall washers for indoor and outdoor applications with a bezel trim requiring very minimal ceiling depth while delivering low brightness illumination.

- Downlight
- Wall Wash
- Wet Location

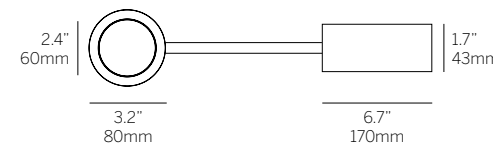
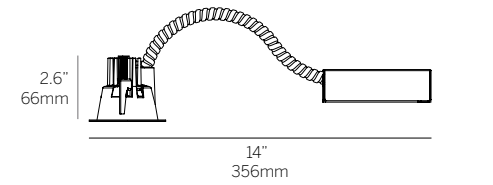


2.4" General Downlight Flush Round Opal Diffuser

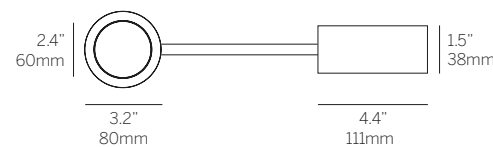
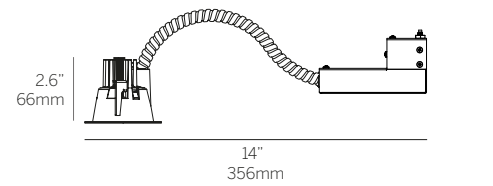
- Part of a family of 2.4" aperture matching downlights.
- General downlight with high-angle distribution provides illumination to adjacent walls.
- Very shallow depth, installed from below the finished ceiling.
- Integral or remote driver accommodate a large selection of driver and control options.
- White and silver finish as standard.
- Mounts in 1/16" to 1" surface.
- Wet Location standard for use in showers and outdoors.
- Made in the USA
- 5-year Warranty



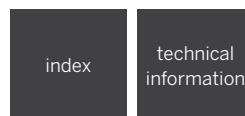
Housing	Die-caste aluminum for precision fit and heat dissipation 3/8" bezel trim compatible with installation from below into ACT, drywall and hard ceilings Quick-screw mounting mechanism EZ-Click Cover installation
Covers	Round Satin Opal Cover flush to ceiling
LED	92CRI, 60+ lumens per watt delivered Low/Mid/High output choices 2700K, 3000K, 3500K, 4000K
Optics	High angle symmetrical distribution
Driver	Integral and remote drivers for all dimming and non-dimming applications Through-wire integral driver enclosure installed from below without the need for bulky housing
Installation	Not required when using the Driver Enclosure
Housing	Optional: IC and Chicago plenum Optional: New construction (with j-box and driver attached) Optional: Landing pan for use with Driver Enclosure to locate cut-out locations
Warranty	5-year Limited (see complete company warranty information)
Certifications	ETL and ETL-C for dry and damp location, CE, Wet Location rated



Standard housing



Shallow housing (SH)



Design Guide
20-25

2.4" General Downlight Flush Round Opal Diffuser

Model	Fixation	Power ¹	CRI/CCT ^{2,3}	Driver ⁵	Cover	Beam	Options
WG-60RGDL	RBT	L M H	927 930 935 940	X S S010 SPH RD010 RPEQ0	FROD	W (std) S ⁵ F	CP IC NC LP SH WL

Model

- WG-60RGDL = 2.4" General Downlight Flush Round Opal Diffuser

Fixation

- RBT = Recessed Bezel Trim

Power¹

- L = Low Power, 5.9W @ 350mA
- M = Mid Power, 8.6W @ 500mA
- H = High Power, 12.4W @ 700mA

CRI/CCT^{2,3}

- 90+ CRI (Low/Medium/High Power)
- 927 = 2700K, (416/566/747 lm)
- 930 = 3000K, (448/609/804 lm)
- 935 = 3500K, (448/609/804 lm)
- 940 = 4000K, (479/652/861 lm)

Driver⁴

- X = Driver ordered separately

Integral

- S = Standard non-dim driver, 120-277V
- S010 = 0-10V >10% dimming, 120-277V
- SPH = Standard Phase Dimming, 120VAC (available in low and medium power only)

Remote

- RD010 = EldoLED, 1%, 0-10V dimming, 120-277V
- RPEQ0 = Lutron Hi-lume Premier 0.1% EcoSystem, SoftOn/FadeToBlack, 120-277V

Lens

- FROD = Flush round opal diffuser

Finish

- W = White, RAL 9010 (standard)
- S = Silver, 15% gloss, Tiger Drylac 49/90500⁵
- F = Custom finish (provide RAL code)

Options

- CP = Chicago Plenum Housing
- IC = Insulated Ceiling Housing
- NC = New Construction Housing
- LP = Landing Pan (specify for Acoustic Ceiling Tile installation)
- SH = Reduces required plenum space to 3.5" (89mm) (available in low and medium power S, S010 and SPH drivers only)
- WL = Wet Location
- **Emergency Remote Only**
- Emergency LED battery backup available, order separately

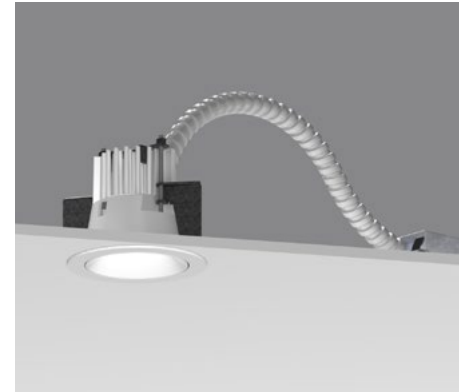
Whitegoods reserves the right to change any information without prior notice.

Notes

- 1 Wattage shown does not include power supplies/drivers. System wattage adds 10-20%.
- 2 Other lumen packages available, consult factory.
- 3 Delivered lumens shown. See page 4 for additional details.
- 4 See power supply page for details.
- 5 See Tiger Drylac color chart: inter-lux.com/tiger

2.4" General Downlight Round Regressed Cone

- Part of a complete family of 2.4" aperture matching downlights.
- 50° Cut Off, giving good visual comfort.
- Installation from below the ceiling for remodel and new construction.
- High efficiency clear textured lens deep set into cone cover.
- Integral or remote driver.
- White finish as standard.
- Mounts in 1/16" to 1" surface.
- Wet Location as standard option (WL).
- 74° symmetrical beam spread suitable for general illumination.
- Made in the USA
- 5-year Warranty



Housing Die-cast aluminum for precision fit and heat dissipation
3/8" bezel trim compatible with installation from below into ACT, drywall and hard ceilings
Quick-screw mounting mechanism
EZ-Click Cover installation

Covers Recessed conical reflector with 50 degree cut-off

LED 92CRI, 60+ lumens per watt delivered
Low/Mid/High output choices
2700K, 3000K, 3500K, 4000K

Optics High angle symmetrical distribution

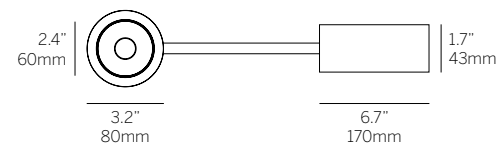
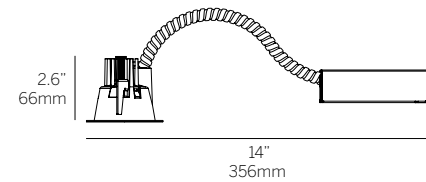
Driver Integral and remote drivers for all dimming and non-dimming applications
Through-wire integral driver enclosure installed from below without the need for bulky housing

Installation Not required when using the Driver Enclosure

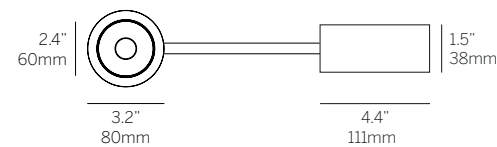
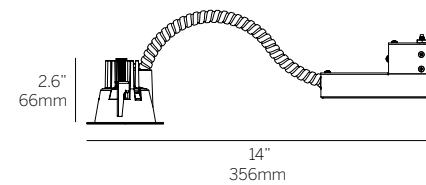
Housing Optional: IC and Chicago plenum
Optional: New construction (with j-box and driver attached)
Optional: Landing pan for use with Driver Enclosure to locate cut-out locations

Warranty 5-year Limited (see complete company warranty information)

Certifications ETL and ETL-C for dry and damp location, CE, Wet Location rated



Standard housing



Shallow housing (SH)

2.4" General Downlight Round Regressed Cone

Model	Fixation	Power ¹	CRI/CCT ^{2,3}	Driver ⁵	Lens	Trim Finish	Cone Finish	Options
WG-60RGDL	RBT	L M H	927 930 935 940	X S S010 SPH RD010 RPEQ0	RRC	W (std) S ⁵ F	W (std) S ⁵ F	CP IC NC LP SH WL

Model

- WG-60RGDL = 2.4" General Downlight Round Regressed Cone

Fixation

- RBT = Recessed Bezel Trim

Power¹

- L = Low Power, 5.9W @ 350mA
- M = Mid Power, 8.6W @ 500mA
- H = High Power, 12.4W @ 700mA

CRI/CCT^{2,3}

- 90+ CRI (Low/Medium/High Power)
- 927 = 2700K, (399/543/717 lm)
- 930 = 3000K, (429/584/771 lm)
- 935 = 3500K, (429/584/771 lm)
- 940 = 4000K, (459/625/826 lm)

Driver⁴

- X = Driver ordered separately

Integral

- S = Standard non-dim driver, 120-277V
- S010 = 0-10V >10% dimming, 120-277V
- SPH = Standard Phase Dimming, 120VAC (available in low and medium power only)

Remote

- RD010 = EldoLED, 1%, 0-10V dimming, 120-277V
- RPEQ0 = Lutron Hi-lume Premier 0.1% EcoSystem, SoftOn/FadeToBlack, 120-277V

Lens

- RRC = Round regressed cone

Trim Finish

- W = White (standard)
- S = Silver, 15% gloss, Tiger Drylac 49/90500⁵
- F = Custom finish (provide RAL code)

Cone Finish

- W = White, RAL 9010 (standard)
- S = Silver, 15% gloss, Tiger Drylac 49/90500⁵
- F = Custom finish (provide RAL code)

Options

- CP = Chicago Plenum Housing
- IC = Insulated Ceiling Housing
- NC = New Construction Housing
- LP = Landing Pan (specify for Acoustic Ceiling Tile installation)
- SH = Reduces required plenum space to 3.5" (89mm) (available in low and medium power S, S010 and SPH drivers only)
- WL = Wet Location
- To specify multiple options, select the appropriate grouped codes from drop-down e.g. SH-WL

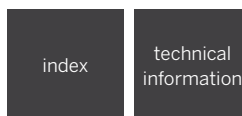
Emergency Remote Only

- Emergency LED battery backup available, order separately

Whitegoods reserves the right to change any information without prior notice.

Notes

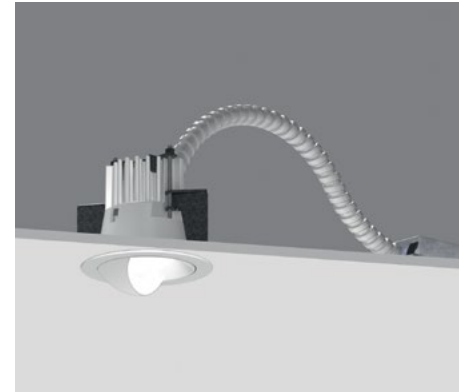
- 1 Wattage shown does not include power supplies/drivers. System wattage adds 10-20%.
- 2 Other lumen packages available, consult factory.
- 3 Delivered lumens shown. See photometry for additional details.
- 4 See power supply page for details.
- 5 See Tiger Drylac color chart: inter-lux.com/tiger



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2.4" General Downlight Round Wall Wash

- Part of a complete family of 2.4" aperture matching downlights.
- Low brightness downlight for general illumination.
- Installs from below the ceiling for new and retrofit installations.
- Very shallow ceiling depth required for both integral and remote drivers.
- Standard low luminance reflector finishes with matching trims and trimless.
- Quick-Snap feature for field-configurable multiple combinations.
- EZ-Click Cover installation makes installing or changing Covers easy in the field.
- Quick-screw mounting mechanism to sandwich the ceiling between the trim and housing for a secure installation.
- Made in the USA
- 5-year Warranty



Housing Die-cast aluminum for precision fit and heat dissipation
3/8" bezel trim compatible with installation from below into ACT, drywall and hard ceilings
Quick-screw mounting mechanism
EZ-Click Cover installation

Covers Asymmetric reflector with room side cut-off

LED 92CRI, 60+ lumens per watt delivered
Low/Mid/High output choices
2700K, 3000K, 3500K, 4000K

Optics High angle symmetrical distribution

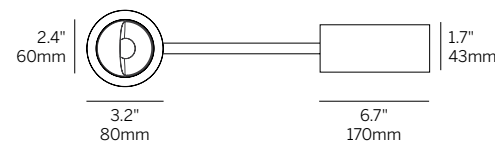
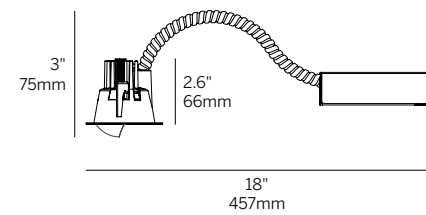
Driver Integral and remote drivers for all dimming and non-dimming applications
Through-wire integral driver enclosure installed from below without the need for bulky housing

Installation Not required when using the Driver Enclosure

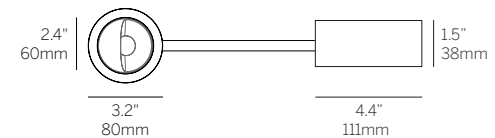
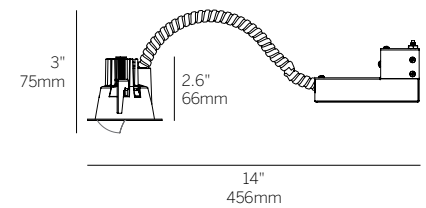
Housing Optional: IC and Chicago plenum
Optional: New construction (with j-box and driver attached)
Optional: Landing pan for use with Driver Enclosure to locate cut-out locations

Warranty 5-year Limited (see complete company warranty information)

Certifications ETL and ETL-C for dry and damp location, CE, Wet Location rated



Standard housing



Shallow housing (SH)

2.4" General Downlight Round Wall Wash

Model	Fixation	Power ¹	CRI/CCT ^{2,3}	Driver ⁵	Lens	Trim Finish	Cone Finish	Options
WG-60RGDL	RBT	L M H	927 930 935 940	X S S010 SPH RD010 RPEQ0	RWW	W (std) S F	W (std) S ⁵ F	CP IC NC LP SH WL

Model

- WG-60RGDL = 2.4" General Downlight Round Wall Wash

Fixation

- RBT = Recessed Bezel Trim

Power¹

- L = Low Power, 5.9W @ 350mA
- M = Mid Power, 8.6W @ 500mA
- H = High Power, 12.4W @ 700mA

CRI/CCT^{2,3}

- 90+ CRI (Low/Mid/High Power)
- 927 = 2700K, (364/495/654 lm)
- 930 = 3000K, (392/533/704 lm)
- 935 = 3500K, (392/533/704 lm)
- 940 = 4000K, (419/571/753 lm)

Driver⁴

- X = Driver ordered separately

Integral

- S = Standard non-dim driver, 120-277V
- S010 = 0-10V >10% dimming, 120-277V
- SPH = Standard Phase Dimming, 120VAC (available in low and medium power only)

Remote

- RD010 = EldoLED, 1%, 0-10V dimming, 120-277V
- RPEQ0 = Lutron Hi-lume Premier 0.1% EcoSystem, SoftOn/FadeToBlack, 120-277V

Lens

- RWW = Round wall wash

Trim Finish

- W = White (standard)
- S = Silver, 15% gloss, Tiger Drylac 49/90500⁵
- F = Custom finish (provide RAL code)

Cone Finish

- W = White, RAL 9010 (standard)
- S = Silver, 15% gloss, Tiger Drylac 49/90500⁵
- F = Custom finish (provide RAL code)

Options

- CP = Chicago Plenum Housing
- IC = Insulated Ceiling Housing
- NC = New Construction Housing
- LP = Landing Pan (specify for Acoustic Ceiling Tile installation)
- SH = Reduces required plenum space to 3.5" (89mm) (available in low and medium power S, S010 and SPH drivers only)
- WL = Wet Location

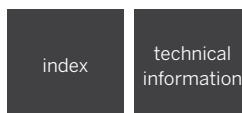
Emergency Remote Only

- Emergency LED battery backup available, order separately

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Notes

- 1 Wattage shown does not include power supplies/drivers. System wattage adds 10-20%.
- 2 Other lumen packages available, consult factory.
- 3 Delivered lumens shown. See photometry for additional details.
- 4 See power supply page for details.
- 5 See Tiger Drylac color chart: inter-lux.com/tiger



Design Guide

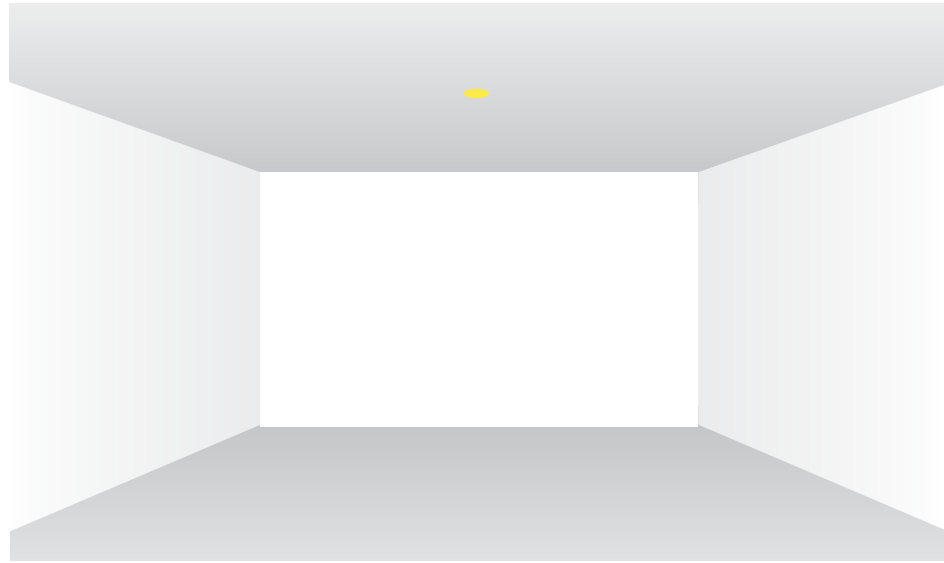
We have provided performance data and characteristics for Whitegoods luminaires, as well as providing expected light levels for typical scenarios based on set parameters. The results are intended as a handy reference to help the specifier plan their project quickly, efficiently and with confidence.

We have taken the most common uses of each luminaire type, set distances and heights based on typical situations and calculated the results. Then, we vary the parameters a little either way so that you can decide for yourself the best option for your particular requirement.



2.4" General Downlight Regressed Cone - Performance

WG 60RDL-RBT-RC



Bezel Trim fixed downlights with various cover options for regressed lens, flush lens and wall wash.

A fixed downlight can be used to deliver general light over a broad area (with a flush lens for example), or a more focused beam of light (from the regressed lens).

The GDL family of luminaires has been developed to offer simple and cost effective lighting wherever it is needed. Simple to install and with simple aesthetics, it's a luminaire which gets the job done with the minimum of fuss.

We have provided here performance data based on the most popular and versatile option: the Regressed Cone.

Refer to the diagram on the left, select your luminaire, ceiling height and distance, and read off the light level achieved in the table below.

Calculated on the following basis:

Reflectances

Ceiling 70%
Walls 50%
Floor 20%

Maintenance factor

1.0

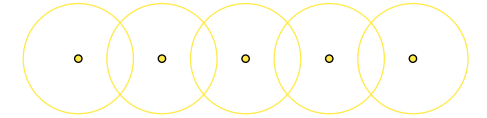
LED

Medium Power
3500 Kelvin
80 CRI

How to create 'Even Illumination' in a space:

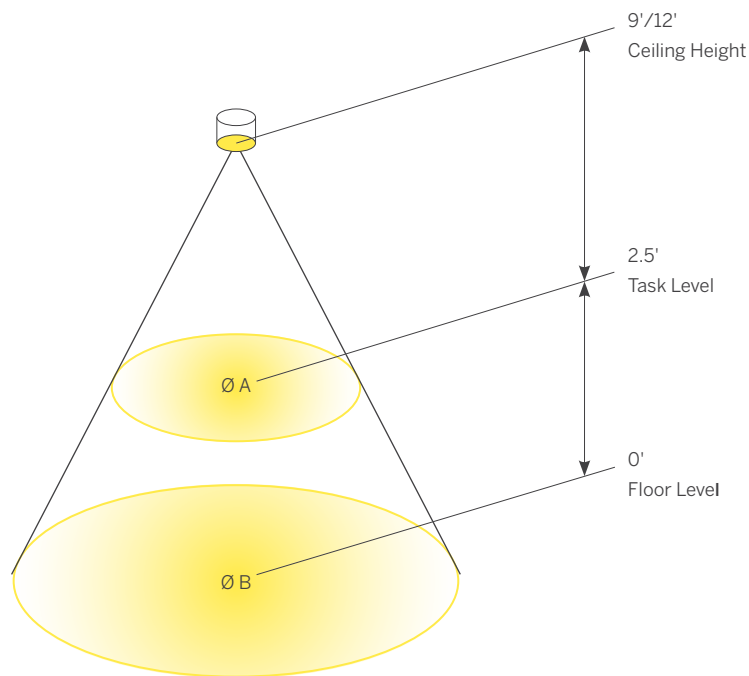
The beam angle of a single luminaire is defined by its Half Peak Intensity*. We can use this to create even illumination in a space.

Arrange luminaires equally. Use the center of the luminaire as a base and ensure that neighboring beam spreads touch or slightly overlap.



*The point at which the beam reaches half of the intensity relative to the center of its beam.

Average Light Levels



The diagram shows the average light level achieved, across an area the size shown, at the given distance from a single luminaire.

Product Code	Beam Spread
WG 60RGDL-RBT-RC -	74°

Calculation Results

Fixtures	Power	Beam	Accessory	Ceiling Height	Ø A	Task Level (2.5') Average	Ø B	Floor Level (0') Average
	965lm*	74°	Clear/Textured Lens	9.0'	Ø 9'	5.3 fc	Ø 13'	2.6 fc
				12.0'	Ø 14'	3.0 fc	Ø 18'	1.6 fc

Values in Foot Candles

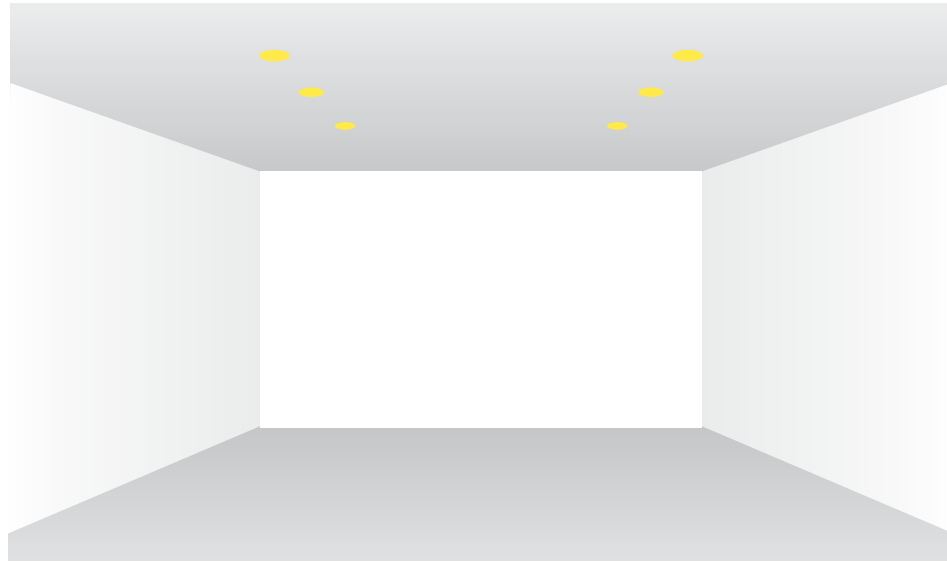
2.4" General Downlight Round Regressed Cone

Product Details

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2.4" General Downlight Multiple Luminaire - Grid Set Out

WG 60RDL-RBT-FD, WG 60RDL-RBT-RC



Bezel Trim fixed downlights with various cover options and accessories.

A fixed downlight can be used to deliver general light over a broad area, or a focused beam of 'concentrated' light.

They can be used for general area lighting in single units, grid patterns or groups.

Wider beams will give a more even, calm light, narrow beams will give a more dramatic mood.

Refer to the diagram on the left, select your luminaire, ceiling height and spacing, and read off the light level achieved in the table below.

Calculated in a 20'x20' room size and on the following basis:

Reflectances

Ceiling 70%

Walls 50%

Floor 20%

Maintenance factor

1.0

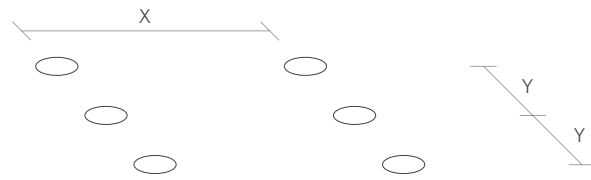
LED

Medium Power

3500 Kelvin

80 CRI

Light Levels



The diagram and table can be read to establish light levels achieved when luminaires are set out at the dimensions indicated, at the ceiling heights shown.

Product Code	Beam Spread
WG 60RDL-RBT-FD -	Lambertian
WG 60RDL-RBT-RC -	74°

X = luminaire spacing center to center
Y = distance between rows

Calculation Results

Fixtures	Power	Beam	Accessory	Ceiling Height	Y	X		
						Average Light Levels (fc)		
						4.0'	6.0'	8.0'
WG 60RDL-RBT-FD	965lm*	Lambertian	Flush Satin Opal Diffuser	9.0'	4.0'	15	13	11
					6.0'	13	11	10
					8.0'	11	10	8
				12.0'	4.0'	11	10	9
					6.0'	10	9	8
					8.0'	9	8	7
	965lm*	74°	Clear Textured Lens	9.0'	4.0'	22	18	15
					6.0'	18	14	12
					8.0'	15	12	10
				12.0'	4.0'	18	14	13
					6.0'	14	12	10
					8.0'	13	10	9

Values in Foot Candles

2.4" General Downlight Round Flush Diffuser

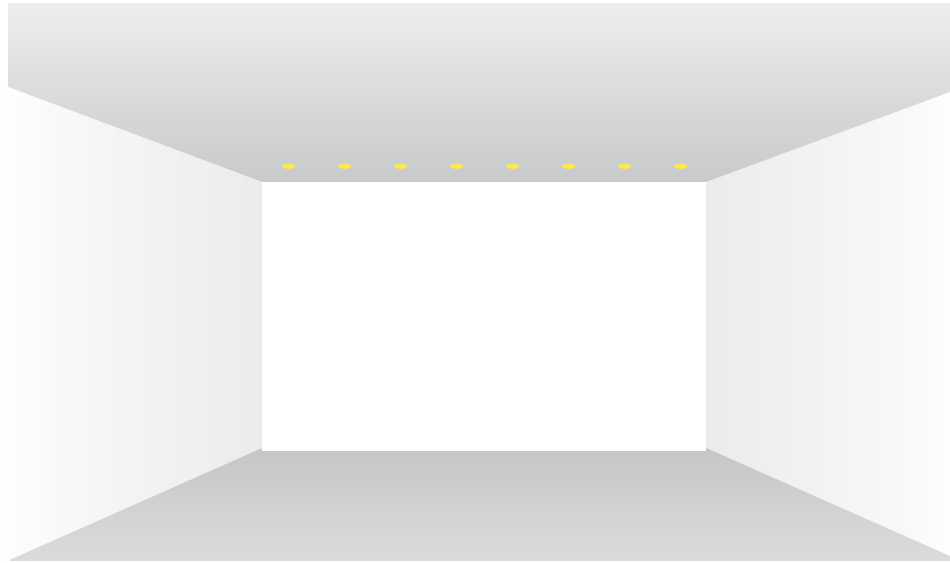
Product Details 10

2.4" General Downlight Round Regressed Cone

Product Details 12

2.4" General Downlight Flush - High Angle Illumination

WG 60RDL-RBT-FD



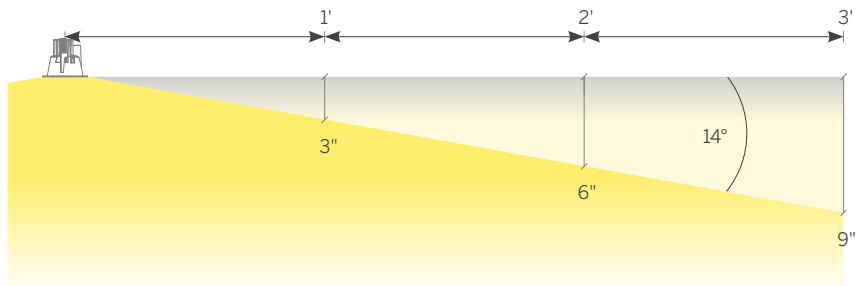
GDL Flush is a versatile luminaire with a Satin Opal diffuser which is flush with the ceiling line.

The Flush Diffuser provides excellent high angle light characteristics. Although it is not intended as a dedicated wall wash luminaire, it can provide good illumination to nearby vertical surfaces as well as providing excellent ambient light throughout a space.

This design guide provides all the information needed to work out exactly how much light can be expected to be delivered to a wall and the floor below, relative to the distance from the wall surface, and the center to center spacings of the luminaires.

Angle of Illumination / High Angle Lighting Performance

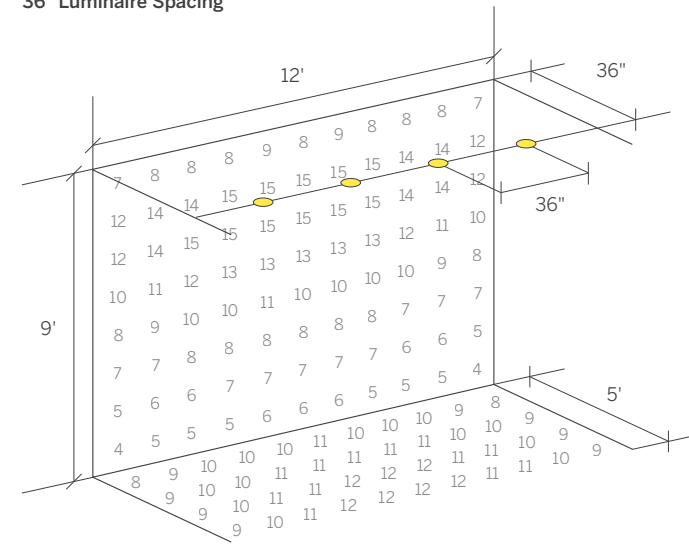
WG 60RDL-RBT-FD



The diagrams show the point at which the contrast between the lit and the unlit vertical surface occurs as a soft transition line, at various distances from the luminaire.

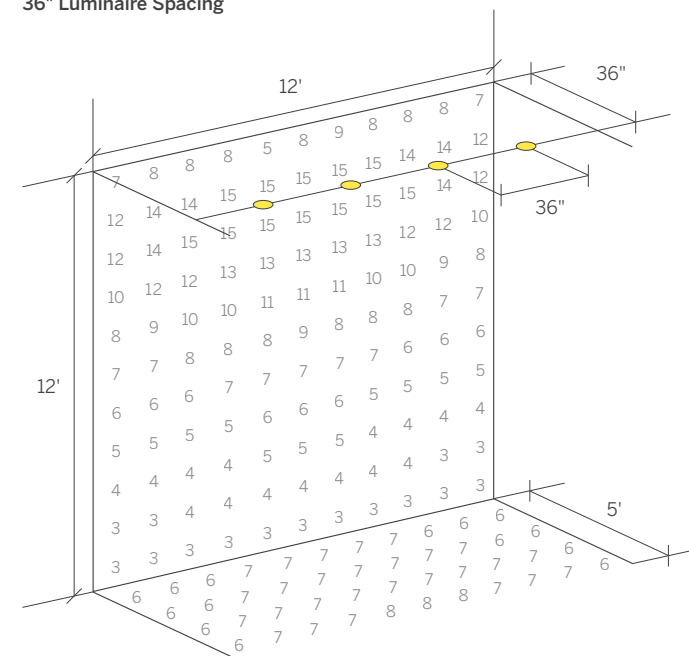
Values in feet & inches

9' Ceiling, Typical 36" Offset, 36" Luminaire Spacing



This page shows typical offsets and luminaire spacings and the resulting illumination which can be expected on the wall and floor. The following page shows results at different offsets and luminaire spacings.

12' Ceiling, Typical 36" Offset, 36" Luminaire Spacing



Values in Foot Candles

Calculated on the following basis:

Reflectances	Maintenance Factor	LED	Diffuser
Ceiling 70%	1.0	965lm*	Flush Frosted
Walls 50%			
Floor 20%			

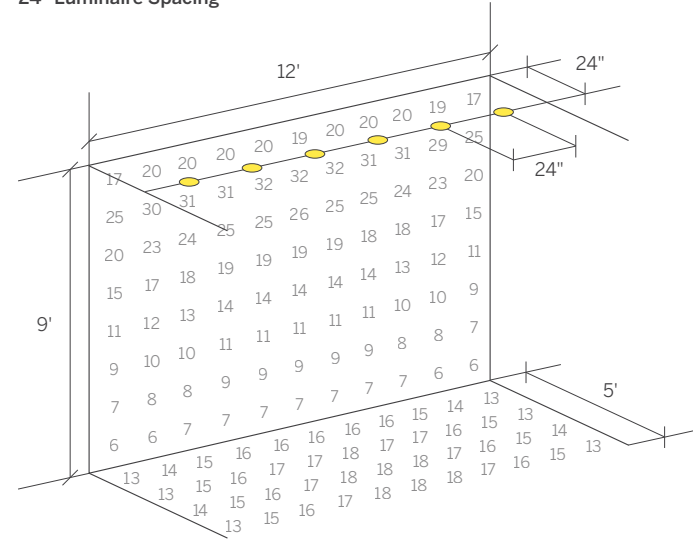
2.4" General Downlight
Round Flush Diffuser

Product Details 10

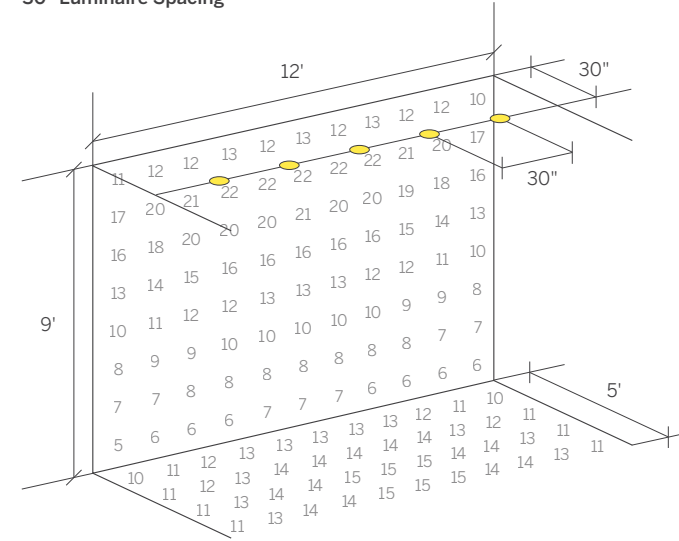
2.4" General Downlight Flush - High Angle Illumination

WG 60RDL-RBT-FD

9' Ceiling, Optimal 24" Offset,
24" Luminaire Spacing

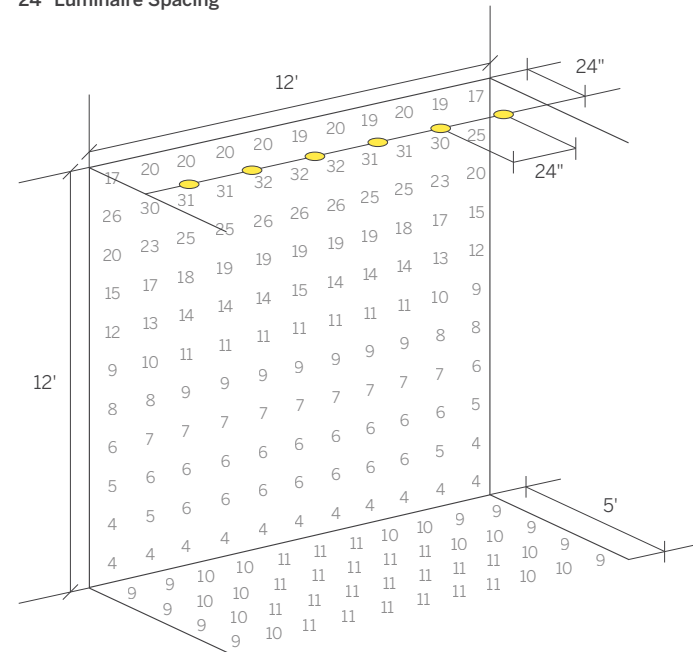


9' Ceiling, Optimal 30" Offset,
30" Luminaire Spacing

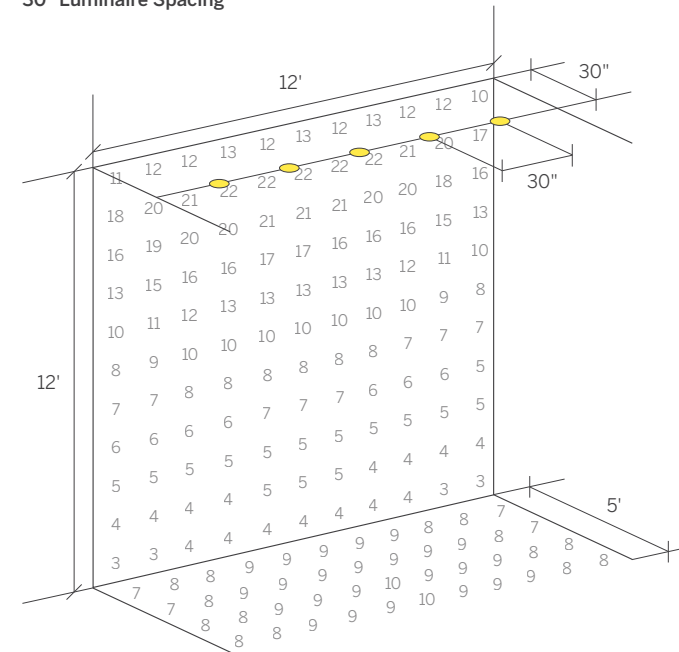


This page shows what we feel are the optimal offsets and luminaire spacings to achieve even illumination.

12' Ceiling, Optimal 24" Offset,
24" Luminaire Spacing



12' Ceiling, Optimal 30" Offset,
30" Luminaire Spacing



Values in Foot Candles

Values in Foot Candles

2.4" General Downlight
Round Flush Diffuser

Product Details

10

Calculated on the following basis:

Reflectances	Maintenance Factor	LED	Diffuser
Ceiling 70%	1.0	965lm*	Flush Frosted
Walls 50%			
Floor 20%			

The application of light to the surfaces around us is a critical factor in our perception of any space.

When proper consideration is given to the architecture, function and the desired atmosphere, lighting can become a truly integrated part of the overall environment being created, often unseen although defining and enhancing the space.