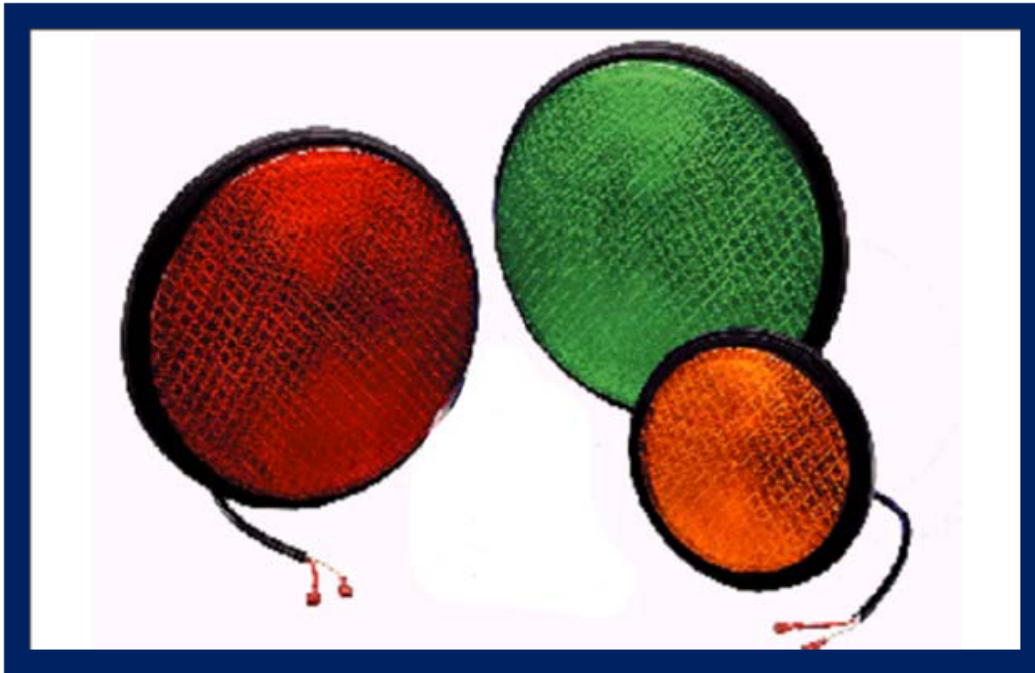


## LED Traffic Signal 433 Series



### 230VAC

**Features:**

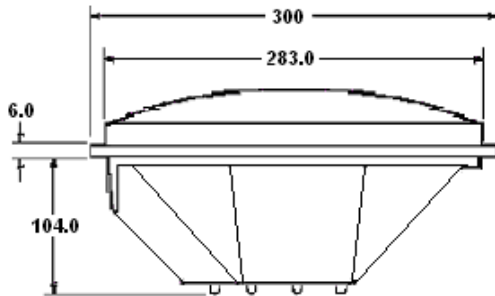
- Clustered LED's as Light Source
- Sealed for Life Unit
- Durable Materials
- Rim Dimensions Matching Existing Housings

**Benefits:**

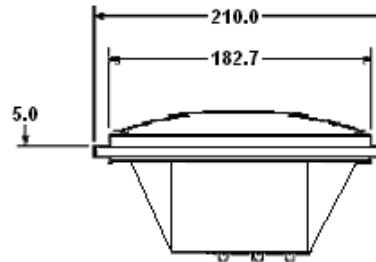
- Low Energy Consumption
- Uniform Luminance of the Front Lens
- Long and Reliable Service Life
- Easy Installation in the Door of a Signal Housing

A fully contained low wattage LED Traffic Signal Module meeting European specification EN12368. The module is primarily intended for use as a retrofit unit for traffic signals that are currently equipped with incandescent, low voltage Krypton or Halogen light sources. The LED Traffic Signal Module comprises a high flux LED light source, Fresnel lens, and tinted or not tinted front lens. The Fresnel lens is sealed to the housing to create a dust and waterproof system. Key features of the signal are very low power consumption and a smooth, uniform appearance when illuminated. The optics and drive circuits are designed so that the failure of a single LED will neither create a dark spot, nor reduce the signal intensity.

## Dimensions



300 mm Signal Module



210 mm Signal Module

## Optical Characteristics

At  $T_A = 25^\circ\text{C}$  (Typical values 210mm unless otherwise stated)

Parameter	Symbol	Red	Amber	Green	Units
Dominant Wavelength	$\lambda_d$	615 - 631.5	585 - 597	498.5 - 508	nm
Tinted lens data					
Light distribution (210mm & 300mm)		A2/1 type W	A2/1 type W	A2/1 type W	
Light Intensity	$I_v$	300	300	400	cd
Luminance Uniformity		>1:10	>1:10	>1:10	$L_{min}:L_{max}$
Phantom Class		3	3	5	$I_s:I_{ph}$
Phantom Class - clear lens		1	1	1	$I_s:I_{ph}$
Black lens data					
Light distribution (210mm & 300mm)		B2/1 type W	B2/1 type W	B2/1 type W	
Light Intensity	$I_v$	200	200	300	cd
Luminance Uniformity		>1:6	>1:7	>1:6	$L_{min}:L_{max}$
Phantom Class		3	3	3	$I_s:I_{ph}$

## Electrical Characteristics

At  $T_A = 25^\circ\text{C}$

230VAC					
Parameter	Symbol	Red	Amber	Green	Units
Typical Power Consumption	P	12	12	12	W
Voltage <sup>[1]</sup>	V	230VAC			V
Voltage Range	V	196-253			V
Minimum Power Factor		According to EN 61000-3-2			
Maximum THD		According to EN 61000-3-2			
Insulation Class		II (IEC 598-1 Section 1.2.23)			
EMC		According to EN 50276			

Notes:

[1] Power consumption minimum values vary by controller

## Thermal Characteristics

(All Part Numbers)

Parameter	Symbol	210mm	300mm	Units
Operating Temperature <sup>[2]</sup>	T <sub>OP</sub>	-40 to +60		°C
Thermal Resistance, Junction to Ambient <sup>[3]</sup>	R <sub>ΘJ-A</sub>	2.5	2	K/W

Notes:

[2] Refers to the ambient temperature range when power is applied to the module

[3] At 60°C based on total dissipated system power

## Mechanical Data

Parameter	210mm	300mm	Units
Minimum Weight	1.53		kg
Vibrations	IEC 68-2-34		
Impact Lens	EN 60598-1 Clause 4.13.4 Class IR3		
Protection Grade	EN60529 test 13 and 14, rating IP 65		
Relative Humidity	Up to 95%		
Flammability	V-0 (US requirement)		
Minimum Cable Length outside the Housing	1		m
Symbols	Painted on the outer lens		
Packing	12 signals per box	6 signals per box	

## Part Numbers

	No Lens		Coloured Lens		Clear Lens		Black Lens	
	210mm	300mm	210mm	300mm	210mm	300mm	210mm	300mm
Red	143318	143324	143312	143315	143309	143306	143459	143462
Amber	143319	143325	143313	143316	143310	143307	143460	143463
Green	143320	143326	143314	143317	143311	143308	143461	143464
Blue/Green	N/A	N/A	143375	143345	N/A	N/A	N/A	N/A
White	143382	143383	N/A	N/A	143380	143381	N/A	N/A