

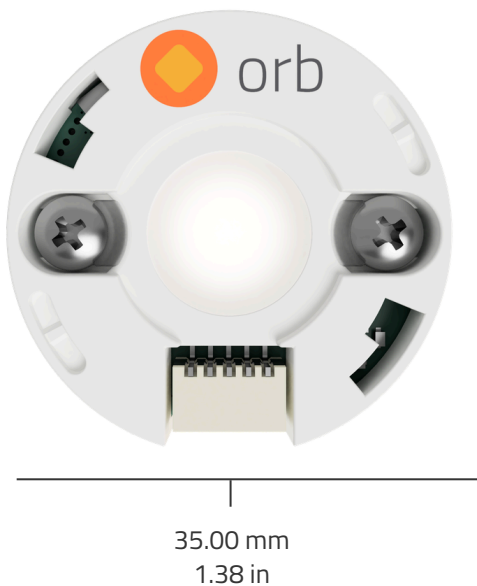
35mm ORB1 & ORB3X - PRELIMINARY



Features

- > Multi-channel constant current driver with up to 3 precisely controlled output channels
- > Integrate intelligent tunable spectra control features into a modular form factor
- > Select from different tunable white arrays or COB to achieve desired spectra mix, LES source size, and lumen output
- > Compatible with a wide selection of TIR optics and reflectors
- > Control Protocols: DMX/RDM & Casambi BLE

Mechanical Specifications



Ultra Low Profile - High Optical Efficiency
Embedded Antenna at the Face of Fixture - Incredible Wireless Range



Choose your Modular LED Array or COB

Spectra : Tunable White
LES : 10mm
Lumens : Up to 1200lm



COB
ORB1-Vx-35



Modular LED Array
ORB3X-Vx-35



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35mm ORB Order Codes

Order Code*	Arkalumen Part Number	Technology	LED Module	Number of Channels	Control Protocol
ORB1-VA-35-xxxx	APT-CV3-VA-35ORB1-xxxx	Static White	COB	1	DMX/RDM
ORB1-VWC-35-xxxx	APT-CV3-VWC-35ORB1-xxxx	Static White	COB	1	Casambi BLE
ORB3X-VA-35-xxxx	APT-CV3-VA-35ORB3X-xxxx	Tunable White	LoDA	3	DMX/RDM
ORB3X-VWC-35-xxxx	APT-CV3-VWC-35ORB3X-xxxx	Tunable White	LoDA	3	Casambi BLE

*xxxx – Firmware code provided by Arkalumen

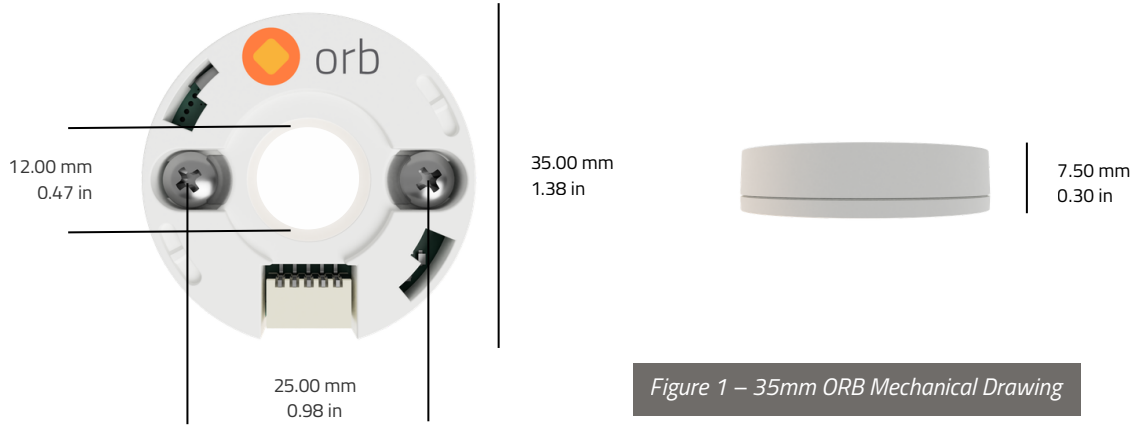
35mm ORB Electrical Specifications

Order Code	Max Input Voltage [V]*	Max Channel Current [mA]	Max Total Current [mA]	Max Wattage [W]**
ORB1-VA-35-xxxx	36	1000	1000	36
ORB1-VWC-35-xxxx	36	1000	1000	36
ORB3X-VA-35-xxxx	36	1000	1000	36
ORB3X-VWC-35-xxxx	36	1000	1000	36

*Input Voltage is dependent on the LoDA or COB, please refer to the Reference Design Sheet (RDS) for required input voltage

**Max Wattage is typically limited to the LED module populated in ORB

Mechanical Specifications



Encasement Specifications

Material	Plastic
RTI Elec	130°C

Operating Conditions

Temperature Limits

Min Ambient Temperature, Ta	-40°C
Max Ambient Temperature, Ta	40°C

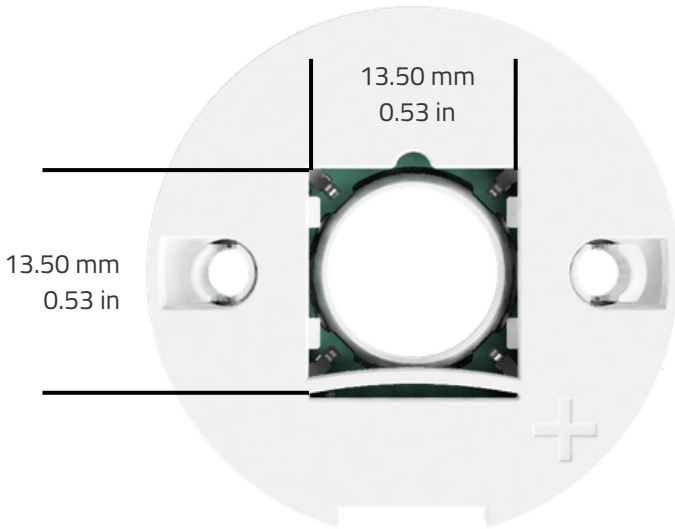
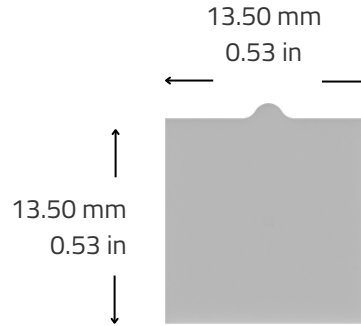


Figure 1 – 35mm ORB Bottom View

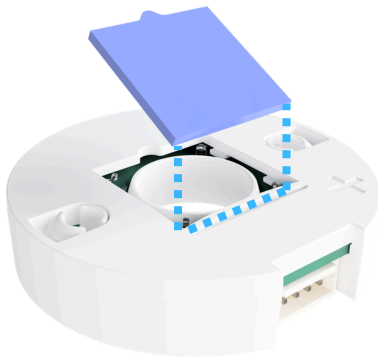


All LxxxB LoDAs have the same dimension and are specifically designed to integrate into all ORB line of products

Figure 2 – Bottom View of LoDA LED Module

How to Insert LoDA or COB Into 35mm ORB

Step 1



Insert into the back of the ORB at a 45° angle, toward the spring side
*For COBs please note the + marking

Figure 3

Step 2



Once aligned with the bottom of the ORB, push down into a flush position

Figure 4

Step 3



Properly inserted into ORB

Figure 5



Control Protocol: DMX/RDM

Wiring Diagram

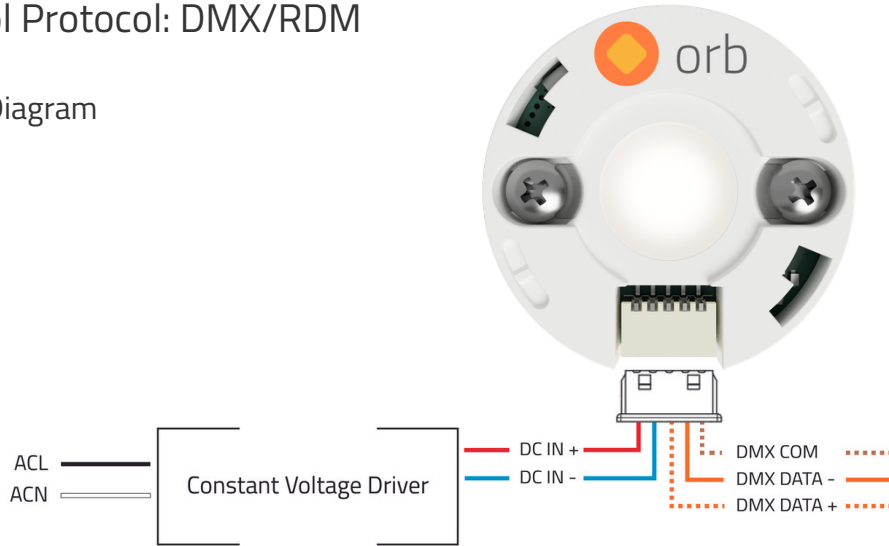


Figure 6 – DMX/RDM Wiring Diagram

ARK-C3-5A-30

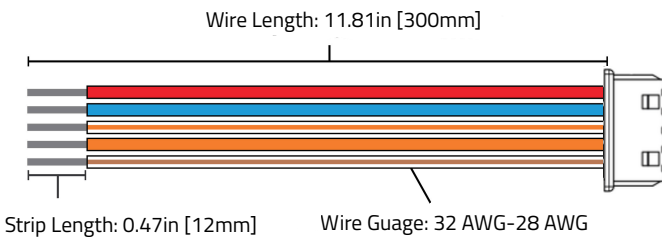


Figure 7 – DMX/RDM Cable Assembly

Function	Wire Color
DC IN +	Red
DC IN -	Blue
DMX Data +	White/Orange
DMX Data -	Orange
DMX COM	White/Brown

Electrical Specifications

Port	Voltage [V]		Current [mA]	
	Min	Max	Min	Max
DMX Data +/Data -	-10	15	-0.8	1

ORB controller acts as a floating device as per ANSI E1.11 – 2024. Use only with a driver with an output not referenced to earth or protective ground (ie. isolated output)
 ORB3X-VA-35-xxxx uses an NCC DMX512-A connector



DMX Personalities

ORB1-VA-35-xxxx
COB

DMX Address Assignment	
1	INT

LEGEND	
COB/CH1 Intensity	INT

Figure 8 – ORB1-VA-35 DMX Personalities

ORB3X-VA-35-xxxx
LoDA

DMX Address Assignment		
1	DTW	-
2	INT	CCT
3	18K	-
4	27K	-
5	30K	-
6	35K	-
7	40K	-
8	50K	-
9	56K	-
10	65K	-
11	SWH	-

LEGEND							
Dim-to-Warm	DTW	Intensity Control	INT	CCT Control	CCT	Selectable White	SWH

Figure 9 – ORB3X-VA-35 DMX Personalities

Control Protocol: Wireless BLE

Wiring Diagram

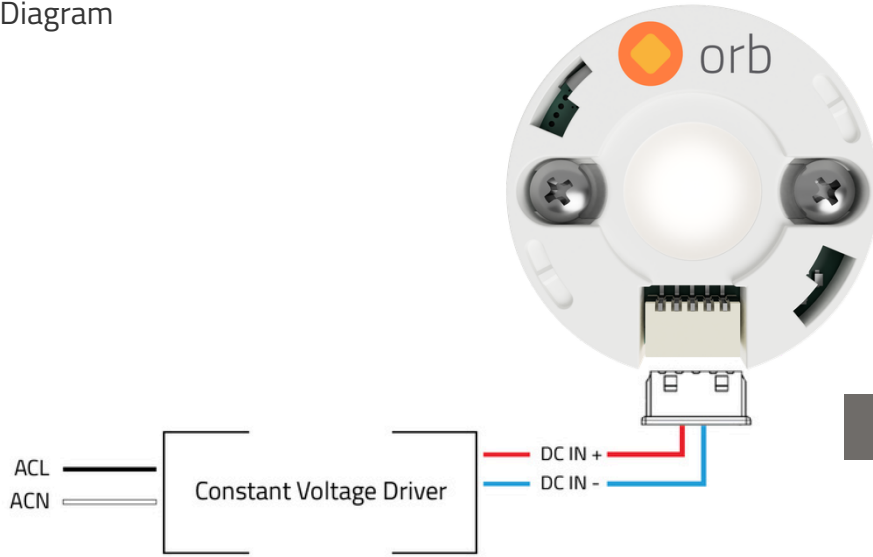


Figure 10 – Wireless BLE Wiring Diagram

ARK-C3-AB-30

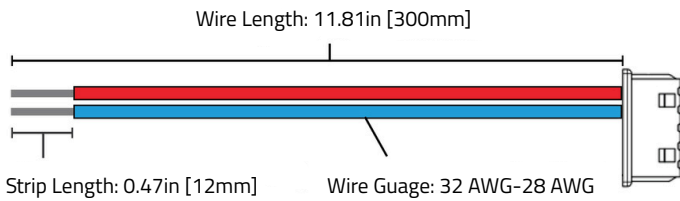


Figure 11 – Wireless BLE Cable Assembly

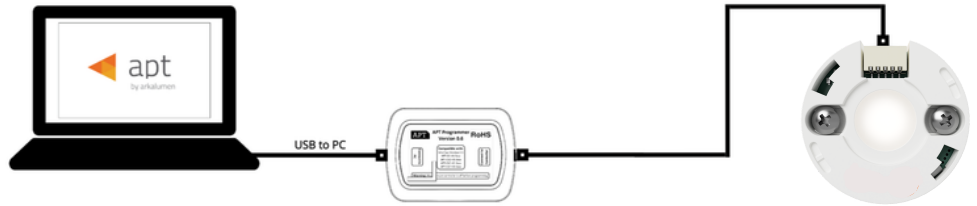
Function	Wire Color
DC IN +	Red
DC IN -	Blue



Figure 12 – Embedded Antenna Location

When designing and placing the embedded antenna in its enclosure, it is crucial to ensure that no metal is placed near the antenna area, both above and below it. The presence of metal in close proximity to the module can significantly degrade its RF performance.

ORB controller acts as a floating device as per ANSI E1.11 – 2024. Use only with a driver with an output not referenced to earth or protective ground (ie. isolated output)



APT Programmer

Arkalumen’s 35mm ORB controllers are customizable using our APT Programmer, which allows users to easily configure the controller for your applications. To configure, you will need an ORB controller, an APT Programmer hardware unit and the latest version of the APT Programmer user interface.

APT Programmer hardware:

To request an APT Programmer hardware unit, please contact support@arkalumen.com and a unit can be sent to you.

APT Programmer software:

To download the latest APT Programmer user interface, please request a download link via the Arkalumen website www.arkalumen.com/apt-programmer/. You will be prompted to add in your information and a link will be sent to you via email with the latest version of the software. If you do not receive the email, please ensure to check your spam folder.

Programmable Features Chart

Features	ORB1-VA-35-xxxx	ORB1-VWC-35-xxxx	ORB3X-VA-35-xxxx	ORB3X-VWC-35-xxxx
Control Protocol	DMX/RDM	Casambi BLE	DMX/RDM	Casambi BLE
LoDA Selection	✓	✓	✓	✓
DMX Personality	✓		✓	
DMX Base Address	✓		✓	
DMX Error Rejection Level	✓		✓	
Max Total Current	✓	✓	✓	✓
Retrieve Configurations	✓	✓	✓	✓
Turn Off Transition (Instantaneous or Fade)	✓	✓	✓	✓
CCT Mapping Table	✓			
INT Mapping Table	✓	✓	✓	✓

Arkalumen Accessories

Diffuser Elements

Arkalumen Part Number	Material	Shape	Thickness [mm]	Level of Diffusion
ARK-DF-SF2-35	Silicone	Flat	0.5	2



ARK-DF-SF2-35

Cables

Arkalumen Part Number	Compatibility	Number of Wires	Wire Colors	Length [mm]
ARK-C3-5A-30	ORB1-VA-35-xxxx ORB3X-VA-35-xxxx	5	Red, Blue, White/Orange, Orange, White/Brown	300
ARK-C3-2A-30	ORB1-VWC-35-xxxx ORB3X-VWC-35-xxxx	2	Red, Blue	300

Molex Part Number - 10147603-00006LF

APT Programming Cable

Arkalumen Part Number	Compatibility	Number of Wires	Wire Color	Length [mm]
ARK-C3-1A-50	ORB1-Vx-35-xxxx ORB3X-Vx-35-xxxx	1	Black	500

Molex Part Number - 10147603-00006LF

Cable provided with APT Programmer Hardware unit

Thermal Interface Material

Arkalumen Part Number	Compatibility	Dimensions [mm]	Material
ARK-TM-PC1-1313	ORB1-Vx-35-xxxx ORB3X-Vx-35-xxxx	13.5 x 13.5	Phase Changing Material



Ecosystem Accessories

TIR Optic & Reflectors

Arkalumen ORB Systems are compatible with a wide range of TIR optics and reflectors. Please contact Arkalumen to confirm the compatibility of your selection.

Approved Drivers

Arkalumen 35mm ORB Systems are compatible with a wide range of isolated 24V constant voltage output drivers. Please contact Arkalumen to confirm the compatibility of your selection.

Heat Sink

Arkalumen LED modules are designed to be thermally managed to maintain a Tc point temperature equal to or less than the maximum specified temperature. When selecting materials for thermal management, consider using a thermal interface material and a heat sink. It is recommended to source products with low thermal resistance (C/W). Heat sinks may be specified with a power limit. Look for heat sinks with a power limit at least as high as the maximum power of the selected LED module. Testing within likely applications of the finished assembly is necessary to ensure that the Tc point temperature limit is not being exceeded.

Screws

Socket head or rounded button head hex drive screws are recommended. Please note that countersunk screws and thread forming or rolling screws are not allowed.

Metric: M3 x 0.5mm thread, 20mm long. Imperial: #4-40 UNC, 0.5in. Length should be adjusted to the heat sink.

Torque: 0.22Nm

Head diameter for the screw: 6mm

Max head height: 2.52mm



Contact Us

For any further support please contact Arkalumen at support@arkalumen.com or toll free at 1.877.865.5533

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