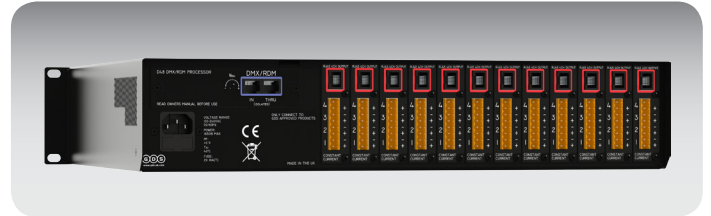# ArcSystem^{1.5}

ARC-D48 drivers

Datasheet

Introduction

ArcSystem is a comprehensive range of LED lighting fixtures and control options specifically designed for auditorium and arena spaces where quality of light, precise dimming control and ease of installation are primary factors. Wireless operation allows for rapid integration of the whole ArcSystem with existing auditorium lighting installations.

The ArcSystem range features numerous lighting fixtures, the larger of which have their own in-built wireless receivers and power drivers. For the smaller ArcSystem fixtures that don't, we provide a range of drivers, with the range topping **ARC-D48** models offering very high capacity to support many separate fixtures with smooth, step-less dimming. Control signals are received as wired DMX, most commonly from a **TX1 ArcMesh transmitter**, which operates in response to inputs from wireless auditorium button panels and/or an external DMX feed from a lighting console. Please note, ARC-D48 drivers do not accept wireless signals.

Initial setup and ongoing maintenance is performed using RDM (Remote Device Management) across the wired DMX link. Various third party RDM devices are available for this purpose.

ARC-D48
Driver

Mains power
100 to 240VAC 50/60Hz

DMX out
from TX1

TX1 ArcMesh transmitter

ARC-CP8
wireless button panel

Mains power
100 to 240VAC 50/60Hz

DMX in
from lighting console

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ARC-D48 drivers

Range summary

ARC-D48 CC

Pro One-Cell Small **x48**

or

Pro One-Cell Large **x48**

or

Pro One-Cell MR16 **x96**

Constant current dimming, suitable for driving Pro One-Cell fixtures.

- Enclosure: 19" rack mount (see page 5 for dimensions)
- Power input: 100 to 240VAC (50/60Hz)
- Power output: 1500W maximum at 230VAC, 1200W maximum at 120VAC
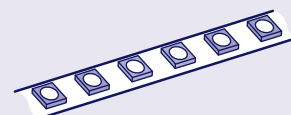- Power output: 48VDC

ARC-D48 CV

LED strips **up to 1500W**

Constant voltage dimming, suitable for driving loads such as LED strips.

- Enclosure: 19" rack mount (see page 5 for dimensions)
- Power input: 100 to 240VAC (50/60Hz)
- Power output: 1500W maximum at 230VAC, 1200W maximum at 120VAC
- Power output: 24VDC (adjustable between 22-28VDC)

ArcSystem¹·⁵

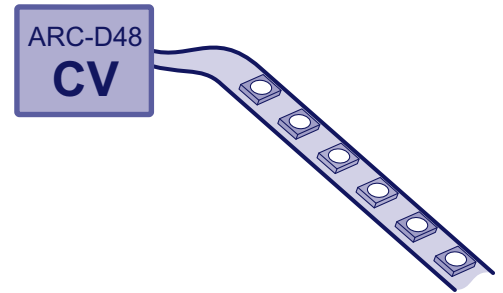## ARC-D48 drivers

Constant current vs constant voltage

You will notice that the D48 driver is available in two types: *Constant Current (CC)* and *Constant Voltage (CV)*. For both types, their job is to vary the power supplied to the LED fixtures in order to smoothly dim them up and down. One type of driver achieves this by maintaining a constant current level while changing the voltage, the other driver achieves the same result, but does it the other way round.

So why the difference?

Firstly, the most efficient way to power an LED fixture is to use a *constant current* driver; consequently the majority of our fixtures operate in this manner. Our Pro One-Cell fixtures all need a CC driver and our Pro Multi-Cell fixtures have the equivalent CC driver built directly into them.
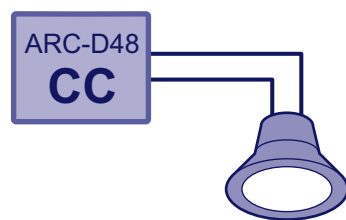
However, there are situations where it is not possible to use CC drivers; most notably when you have multiple LED emitters connected in parallel to the same power source. For instance, this occurs when LED strips are powered, because they consist of many strings of LED emitters connected in parallel. In such cases, if you tried to use a CC driver, its voltage alterations would produce uneven effects across the multiple emitters, causing imprecise dimming and possibly even permanent damage. In these situations an ARC-D48 CV (constant voltage) driver, with its variable current operation, proves to be an excellent solution.

Key features

- Smooth dimming of GDS LED fixtures.

- Choice of constant current or constant voltage models to suit different fixture arrangements.

- User control by GDS push button units and/or a DMX feed from any lighting console.

- Modular channel cards to allow quick swap out, where necessary.

- Multiple status indicators provide at-a-glance operational feedback.

- Standard 19" rack enclosures (2U).

- Wired DMX/RDM control.

- Hot swappable power supply modules.

- Forced air cooling.

- IEC input.

- 100 to 240VAC 50/60Hz autosensing mains operation.

- Inrush currents:

D48 CC	35A maximum at 230VAC
D48 CV	35A maximum at 230VAC

Configuration

To commission each ARC-D48 driver, a third party DMX/RDM (Remote Device Management) device is required. Numerous devices are available, however, GDS recommend the RDM-TRI or RDM-TXI devices from Jese (www.jese.co.uk) plus Jese GetSet RDM control software running on a notebook computer.

Note: Other RDM devices may not allow all parameters to be changed.

Parameters that can be accessed by RDM include:

- Dimming curve selection (choices are linear, square law, GDS Incandescent Curve (aka D04A)).

- Device DMX addressing. The whole unit can be block addressed or each of the twelve driver cards can be individually addressed.

- Device behaviour on startup and required response to a loss of DMX.

- PSU voltage adjust (+/-10%).

- Access reports on run-time hours.

- Reporting on internal current draw and voltage.

- Factory reset of individual driver cards or entire driver.

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ARC-D48 drivers

Control

ARC-D48 drivers require a wired DMX feed from the control source. The drivers support RDM (Remote Device Management) over the DMX link to allow remote configuration and monitoring.

The use of an optional TX1 ArcMesh transmitter allows multiple control sources, including wireless control panels (as well as the lighting console) to be combined and arbitrated to determine the required lighting states.

Output connections

- ARC-D48 CC models present 48 x two-way terminal blocks (Weidmüller 1146720000) on their rear panels, one for each output channel. The necessary terminal plugs are supplied with each unit. In addition twelve RJ-45 connectors are fitted to provide alternative outputs for the 48 channels. In each group of four, the channel connections are arranged as follows on the respective RJ-45 connector:

    Pin 1 – Ch1 +
    Pin 2 – Ch1 -
    Pin 3 – Ch2 +
    Pin 4 – Ch2 -
    Pin 5 – Ch3 +
    Pin 6 – Ch3 -
    Pin 7 – Ch4 +
    Pin 8 – Ch4 -

    Note: Individual cable runs for CC installations should not exceed 100m (328 feet).

- ARC-D48 CV models present 48 x two-way terminal blocks (CamdenBoss CTB9358/2AO) on their rear panels, one for each output channel. The necessary terminal plugs are supplied with each unit.

    Note: *Cabling for CV installations tend to consist of the venue's hardwired tails leading from parallel clusters of fixtures, such as LED strips. Cable types and lengths used in CV installations must be carefully calculated by the design engineer.*

Order codes

ARC-D48 CC

Constant current dimming, 1500W maximum output (1200W at 120VAC), suitable for driving multiple Pro One-Cell fixtures, standard 19" 2U rack mount enclosure.

  Part code: SPL00861

ARC-D48 CV

Constant voltage dimming, 1500W maximum output (1200W at 120VAC), suitable for driving multiple loads, such as LED strips, standard 19" 2U rack mount enclosure.

  Part code: SPL00862

To specify state (ARC-D48 CC):

A high performance constant current LED driver having 100% to absolute zero dimming, controllable from local DMX. It is designed to drive multiple GDS Pro One-Cell fixtures. The unit delivers drive voltage is 48VDC and delivers a total power output of up to 1500W. The driver is designed for 19" rack mounting. All connections (DMX data in and out, as well as the outputs to the fixtures) are available at the rear panel.

To specify state (ARC-D48 CV):

A high performance constant voltage LED driver having 100% to absolute zero dimming, controllable from local DMX. Designed to drive multiple loads such as LED strip fixtures with a total power output of up to 1500W at a voltage of 24VDC. The driver is designed for 19" rack mounting. All connections (DMX data in and out, as well as the outputs to the fixtures) are available at the rear panel.

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ARC-D48 drivers

Dimensions

439mm (17.28")

396mm (15.59")

483mm (19.02")

88.5mm (3.48")
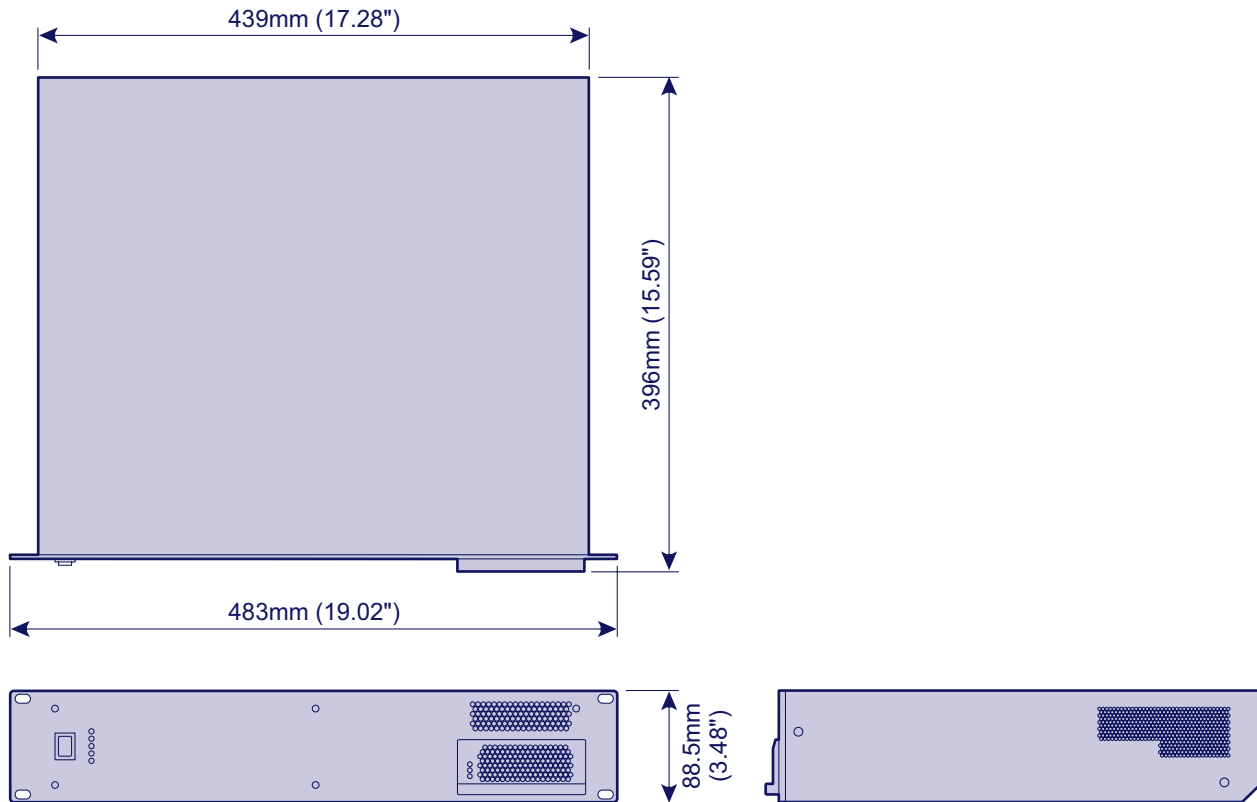
Weight:
11.25 kg (24.8 lbs)

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ARC-D48 drivers

Key items within the ArcSystem range

TX1 ArcMesh transmitter

A vital element in most ArcSystem installations. Controls and coordinates all other elements.

ARC-CP8 button panels

Provide direct recall for 8 of the 24 preset scenes contained within the TX1 ArcMesh transmitter.
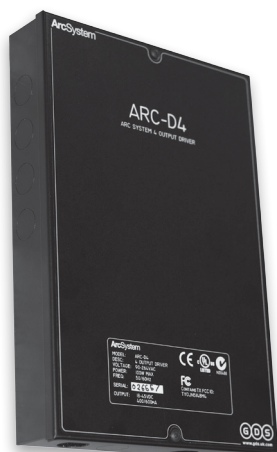
ArcMesh Control USB Commissioning Tool & software

A USB wireless interface tool plus PC application used to commission and maintain ArcSystem installations.

ARC-D1 and ARC-D4 drivers

Mains powered compact drivers in various sizes to dim Pro One-Cell fixtures or ArcLamps according to wireless (or wired) control. Emergency versions also available.

Pro One-Cell fixtures

A range of high output recessed, and yoke mount, single emitter fixtures. These require the use of a D1 or D4 CC driver.

ArcLamps

A range of direct replacement lamps for traditional fixtures. ArcLamps are designed to closely mimic the light output and dimming response of traditional 60W tungsten lamps. ArcLamps require the use of an ARC-D4 ArcLamp driver.

Pro Multi-Cell *(Two to Eight)* fixtures

Mains powered fixtures with 2, 4 or 8 emitters. All driver and wireless systems on board. Can also be hardwired to the control system where necessary. Emergency versions also available.