



ArcSystem Pro Installation Manual

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Introduction

Congratulations on your purchase of ArcSystem products. ArcSystem is a family of overhead LED products designed for installations where dimming, light quality, and ease of installation are absolutely essential. With ArcSystem, you will experience perfectly smooth dimming from 100% down to absolute zero. ArcSystem luminaires come in a variety of form factors, beam angles, and color-temperature options, all with high-efficiency optics and an outstanding quality of light ideal for any application.

ArcSystem products with ArcMesh can be controlled using wired DMX or the wireless ArcMesh protocol. This manual provides step by step instruction on the installation of ArcSystem Pro One-Cell and Multi-Cell luminaires as well as full system integration. For information on installing ArcSystem D1, D2, and D4 Drivers and products with RDM control, see the manuals listed below. All ETC manuals are available for download free of charge at etconnect.com.

- *ArcSystem Pro D1 and D2 Series Drivers Installation Guide* for information on installing D1, D1 HO, and D2 Series drivers and one-cell luminaires
- *ArcSystem Pro D4 Drivers Installation Guide* for information on installing the D4 Series drivers and one-cell luminaires
- *ArcSystem Pro Multi-Cell RDM Installation Guide* for information on installing RDM multi-cell luminaires

Document Conventions

This document uses the following conventions to draw your attention to important information.



Note: *Notes are helpful hints and information that is supplemental to the main text.*



CAUTION: *A Caution statement indicates situations where there may be undefined or unwanted consequences of an action, potential for data loss or an equipment problem.*



WARNING: *A Warning statement indicates situations where damage may occur, people may be harmed, or there are serious or dangerous consequences of an action.*



WARNING: *RISK OF ELECTRIC SHOCK! This warning statement indicates situations where there is a risk of electric shock.*

All ETC documents are available for free download from our website: etconnect.com.

Please email comments about this manual to: TechComm@etconnect.com.

Help from ETC Technical Services

If you have questions that are not answered by this document, try the ETC support website at support.etconnect.com or the main ETC website at etconnect.com. If none of these resources are sufficient, contact ETC Technical Services directly at one of the offices identified below. Emergency service is available from all ETC offices outside of normal business hours.

When calling for help, take these steps first:

- Prepare a detailed description of the problem
- Go near the equipment for troubleshooting
- Find your notification number if you have called in previously

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Safety

ArcSystem products are intended for professional use only. **Read the entire manual before using this equipment.**

IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed including the following:




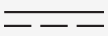





READ AND FOLLOW ALL SAFETY INSTRUCTIONS

- Do not use outdoors.
- Do not let power supply cords touch hot surfaces.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than intended use.

SAVE THESE INSTRUCTIONS

Label Symbols

ArcSystem luminaires and drivers are conveniently labeled with relevant symbols for your safety. Refer to the product label to see which symbols apply to your product.

	Risk of electric shock	Risque de décharge électrique
	General warning	Avertissement général
	This product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.	Ce produit ne doit pas être jeté avec les déchets ménagers mais doit être déposé dans une collecte de déchets électroniques ou dans un point de collecte.
	The product input or output is suitable for direct current only.	L'entrée et la sortie de ce produit convient uniquement au courant continu.
	The product input or output is suitable for alternating current only.	L'entrée et la sortie de ce produit convient uniquement au courant alternatif.
	Safety extra low voltage device	Dispositif de sécurité à très basse tension
	Independent lighting control gear	Appareil de contrôle d'éclairage indépendant.
	Emergency lighting driver (non-battery powered) according to EN-61347-2-13.	Pilote d'éclairage d'urgence (pas alimenté par piles) conformément à la norme EN-61347-2-13.
t_a	Rated maximum ambient temperature	Température ambiante maximale recommandée
t_c	Rated maximum case temperature	Température maximale recommandée pour le boîtier
	The driver is thermally protected to the value located in the triangle in degrees Celsius.	Le pilote est protégé thermiquement à la valeur située dans le triangle en degrés Celsius.

Chapter 1

System Overview

Models are available to meet your installation requirements. This guide covers the products listed below. For complete specifications, view the product datasheets at etconnect.com/ArcSystem.

ArcSystem Pro One-Cell Luminaires

Model	Mounting Options	Driver	Power Input Options
Pro One-Cell or Pro One-Cell Small	<ul style="list-style-type: none"> fixed version: recessed/flush mount (standard luminaire only) adjustable version: recessed/flush mount with two-axis tip and tilt yoke-mount version with single axis tilt (small luminaire only) 	D1 Series driver	<ul style="list-style-type: none"> 100–277 VAC, 50/60Hz hard-wired (non-emergency models) Normal: 100–277 VAC, 50/60Hz, Maintained: 100–277 VAC, 50/60Hz, hard-wired (emergency models for all regions)
		D4 150 CC driver	<ul style="list-style-type: none"> 100–240 VAC, 50/60Hz hard-wired (non-emergency models) 277 VAC, 50/60 Hz hard-wired (non-emergency models, model ends in "-277") Normal: 100–240 VAC, 50/60Hz, Maintained: 100–240 VAC, 50/60Hz, hard-wired (emergency models) Normal: 277 VAC, 50/60Hz, Maintained: 277 VAC, 50/60Hz, hard-wired (emergency models, model ends in "-277")
		D4 350 CC or D4 700 CC driver	<ul style="list-style-type: none"> 100–240 VAC, 50/60 Hz with IEC connector (non-emergency models) or hard-wired (emergency models)
Pro One-Cell Micro	<ul style="list-style-type: none"> adjustable version: recessed/flush mount with two-axis tip and tilt yoke-mount version with single axis tilt 	D2 Series driver required	<ul style="list-style-type: none"> 100–277 VAC, 50/60Hz hard-wired (non-emergency models) Normal: 100–277 VAC, 50/60Hz*, Maintained: 100–277 VAC, 50/60Hz*, hard-wired (emergency models for all regions)
Pro One-Cell High Output		D1 HO Series driver required	<ul style="list-style-type: none"> 100–277 VAC, 50/60Hz hard-wired (non-emergency models) Normal: 100–277 VAC, 50/60Hz, Maintained: 100–277 VAC, 50/60Hz, hard-wired (emergency models for all regions)

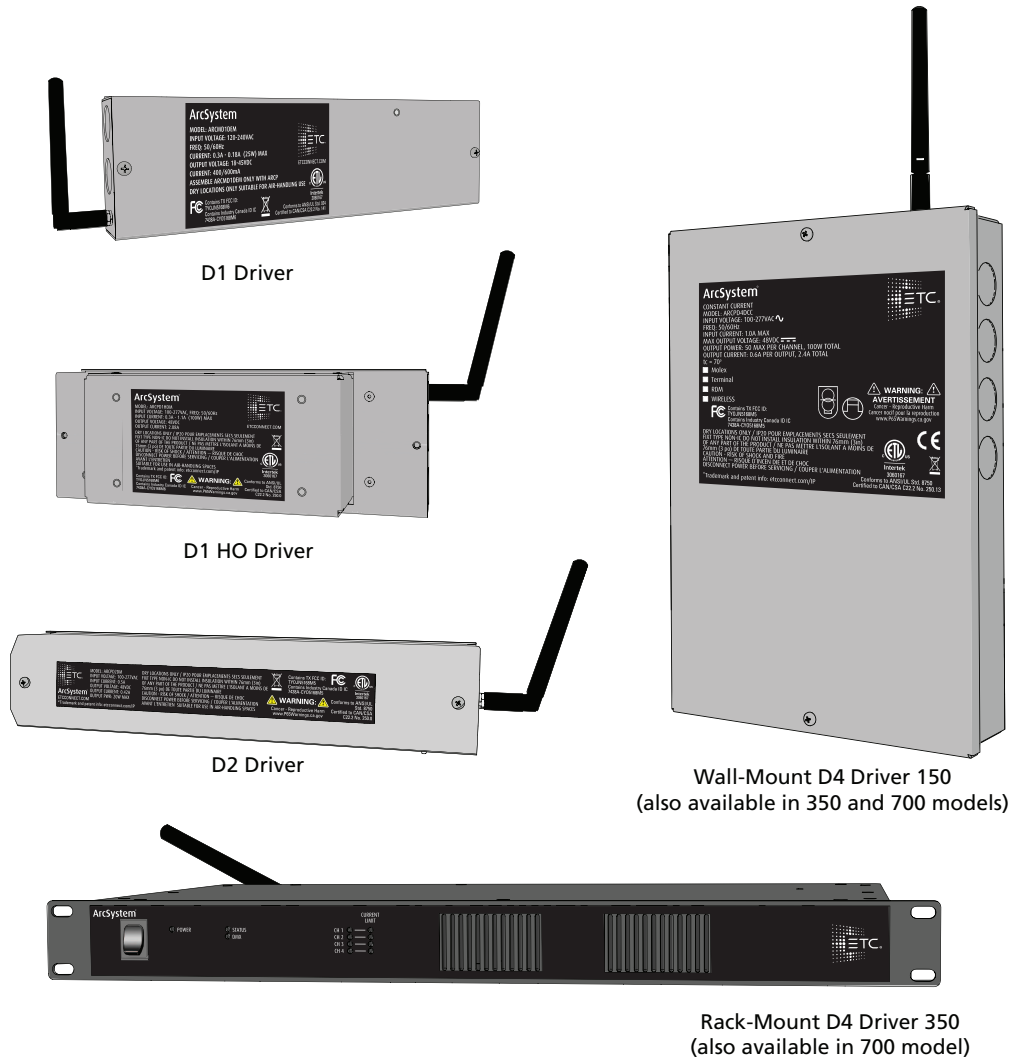
ArcSystem Pro Two-Cell and Pro Eight-Cell Luminaires

Model	Mounting Options	Driver	Power Input Options
Pro Two-Cell	yoke-mount	integral driver	<ul style="list-style-type: none"> 100–240 VAC, 50/60 Hz with IEC connector (non-emergency models) 100–277 VAC, 50/60 Hz hard-wired (non-emergency models) 100–277 VAC, 50/60 Hz hard-wired (emergency models for all regions)
Pro Eight-Cell			

ArcSystem Pro Four-Cell Luminaires

Model	Mounting Options	Driver	Power Input Options
Pro Four-Cell Square	yoke-mount	integral driver	<ul style="list-style-type: none"> • 100–240 VAC, 50/60 Hz with IEC connector (non-emergency models) • 100–277 VAC, 50/60 Hz hard-wired (non-emergency models) • 100–277 VAC, 50/60 Hz hard-wired (emergency models for all regions)
Pro Four-Cell Linear			
Pro Four-Cell Pendant	<ul style="list-style-type: none"> • stem lengths 6, 12, 24, 36, 48, 72, and 96 inches • custom stem lengths are available • pendant accommodates up to 34° sloped ceiling 		
Pro Four-Cell Round	threaded rod (not provided)	integral driver	<ul style="list-style-type: none"> • 100–240 VAC, 50/60 Hz with IEC connector (non-emergency models) • 100–125 VAC, 50/60 Hz with NEMA 5-15 connectors (emergency models for North America only) • 100–240 VAC, 50/60 Hz with hard-wired cables with bare ends (emergency models for outside North America)

D1 Series, D2 Series, and D4 Series Drivers



Note: Antenna is not present on RDM models.

ArcSystem Pro One-Cell luminaires require an external driver. ArcSystem D1, D2, and D4 Series drivers use standard RJ45 connectors for DMX control.

For more information on installation of standard or emergency D1 or D2 series drivers, see the *ArcSystem Pro D1 and D2 Series Installation Guide* at etconnect.com/ArcSystem. For more information on installation of standard or emergency D4 series drivers, see the *ArcSystem Pro D4 Series Installation Guide* at etconnect.com/ArcSystem.

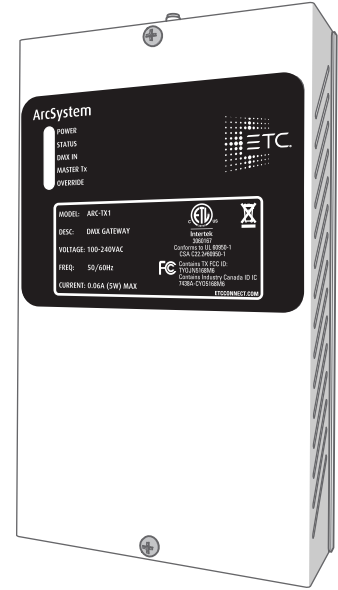
TX1 Transmitter

The TX1 Transmitter is the DMX wireless gateway for the ArcMesh protocol, featuring:

- Control of up to 100 devices across 64 DMX addresses
- 24 preset scene memory
- DMX wired output for control of third party equipment within scene store
- Two auxiliary inputs for closed contact connection to trigger a stored scene

Each transmitter can be set to one of 16 available network IDs allowing multiple transmitters to be used concurrently without “cross-talk.” When two or more transmitters are set to the same network ID and radio channel, the transmitter with the highest MAC address acts as a master with the others assuming the role of backup.

For information on system installation, see [TX1 Installation on page 45](#).



Note: All ArcSystem wireless luminaires require a TX1 Transmitter and commissioning tool to set DMX addresses for both wired DMX and wireless installations. Contact your ETC Service Technician for more information.

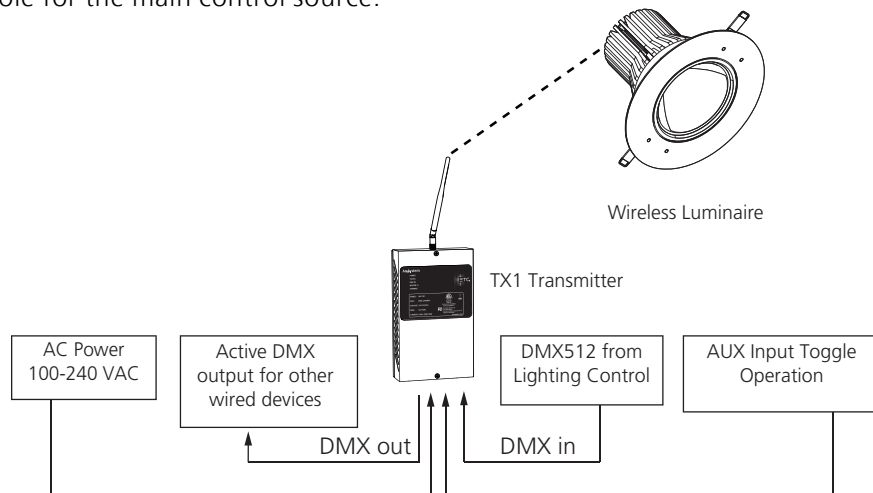


Note: By default the TX1 DMX output is disabled. If you require DMX output from the TX1, you must use the ArcSystem commissioning tool software to add DMX fixtures.

ArcMesh

ArcSystem products can be controlled using wired DMX through RJ45 connections, or the wireless ArcMesh protocol. A wireless installation is an ideal solution for retrofit situations where installing additional cable is not practical.

Each system requires a minimum of one TX1 Transmitter. The TX1 is used as a transmitter of wireless data to luminaires or other devices within a system. The following diagram illustrates a basic hybrid ArcSystem installation with a wireless luminaire, TX1 Transmitter, and a wired DMX console for the main control source.



ArcMesh Specifications

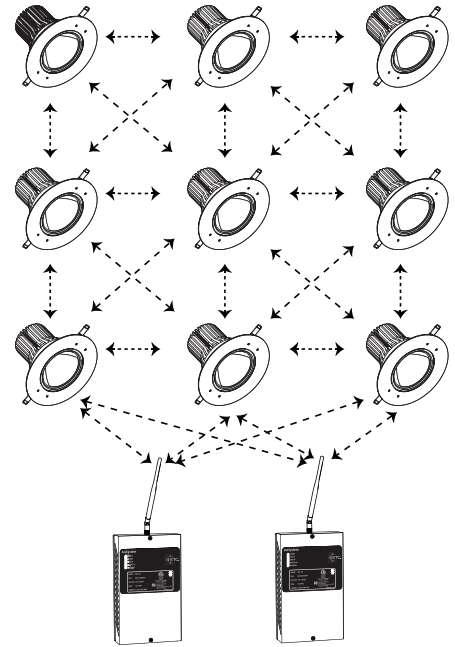
- Use up to 100 devices per TX1 transmitter.
- Patch up to 64 ArcMesh channels to 512 DMX channels.
- Use up to 16 TX1 transmitters per system.

There are no system range limitations for transmitting data between luminaires because each luminaire has the ability to act as a repeater (see Re-Broadcast Mode below). ArcSystem is self-regulating and continues to reconfigure the communication “mesh” to establish the most successful path of communication transmission.

Re-Broadcast Mode

By default all ArcSystem luminaires are shipped with re-broadcast mode turned off to reduce the amount of wireless activity. In areas of poor wireless reception, re-broadcast mode may be enabled on a luminaire-by-luminaire basis to improve the overall signal level of the system.

For more information about ArcMesh and re-broadcast mode, download the *ArcSystem Wireless Information Guide* from etconnect.com.



Emergency System Overview

ArcSystem drivers and luminaires can be purchased in UL924 listed variants. Each of the luminaires can be configured to be UL924 listed when wired into an existing emergency response system.

- See the *ArcSystem D1 and D2 Series Installation Guide*
- See the *ArcSystem D4 Series Installation Guide*
- See [Installing Emergency Multi-Cell Luminaires on page 32](#).

Install the luminaire and its driver, if applicable, in a location that is accessible by qualified personnel for testing of the emergency operation.



Note:

- *Luminaires must be hard-wired to emergency certified drivers to be considered for UL924 certification.*
- *The number of designated emergency lamps and their height is the responsibility of the specifier and installer in order to achieve the minimum FC levels of NFPA 101. Installation scenarios should be evaluated by the AHJ to confirm illuminance and performance requirements of ANSI/NFPA 101 and the IBC.*
- *ArcSystem Pro One-Cell Micro luminaires in emergency installations must be installed with a maximum mounting height of 23.2 ft (7.07 m).*
- *Installation must follow all national and local codes for electrical equipment.*
- *Normal and emergency wiring cannot be contained in the same conduit according to NEC 700.10(B).*

Emergency drivers and luminaires require two branch circuit connections. These inputs have the following functions:

1. **Normal branch circuit to sense failure of the normal supply. Connect to Sense Input connector.**
2. **Normal/Emergency branch circuit providing power to the luminaire in both conditions. Connect to Maintained Input connector.**

Sense detects when power is lost and forces the luminaire to a full-on state, powered by the emergency supply through the Constant Power input. Control of the luminaire will not be available until the sense input has been restored.



WARNING: Do not mix 120 V and 277 V between the sense and emergency feeds.

AVERTISSEMENT : Ne pas inverser les alimentations à 120 V et 277 V entre les alimentations de détection et de secours.

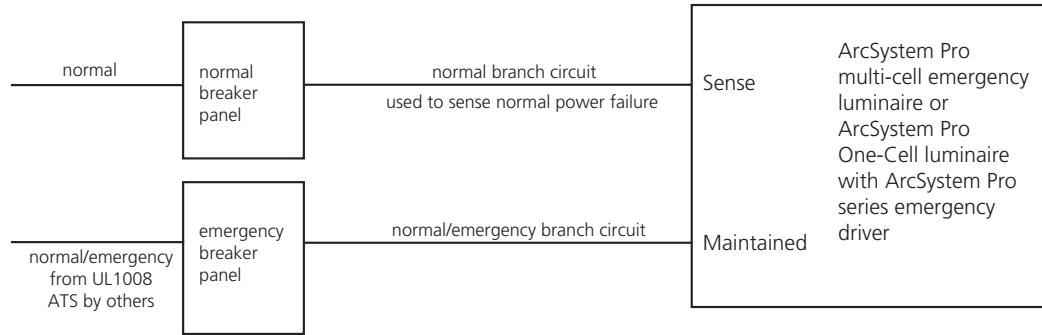


WARNING: Sense (normal) and Maintained (normal/emergency) feeds must have the same phase. The diagram below shows the recommended installation.

AVERTISSEMENT : Les alimentations de détection (normale) et d'entretien (normal/secours) doivent être sur la même phase. Le schéma ci-dessous présente l'installation recommandée.

Typical Installation

The typical installation shown below is suitable for all ArcSystem Pro emergency drivers and ArcSystem Pro multi-cell emergency luminaires.

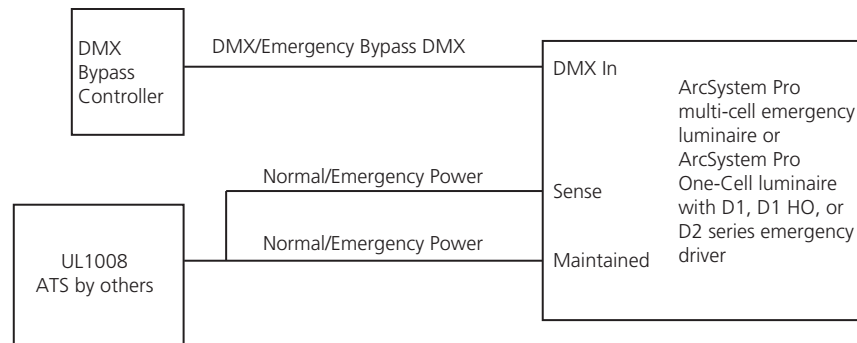


Installation with DMX Bypass Controller

ArcSystem Pro D1, D1 HO, and D2 Series emergency drivers and ArcSystem multi-cell emergency luminaires that are installed in a system with a DMX bypass controller can have their Maintained and Sense inputs fed from an emergency lighting transfer switch (UL1008 ATS).



Note: *The installation shown below is not approved for ArcSystem Pro D4 Series Drivers or ArcSystem ArcLamp Drivers.*



Before You Begin Installation

Review the following sections before beginning your ArcSystem installation. ArcSystem products should only be installed by a qualified installer or electrician.

Power Disconnect Device

Before installation, make sure you have a readily accessible input power disconnect device installed ahead of your ArcSystem products.



WARNING: RISK OF DEATH BY ELECTRIC SHOCK! Failure to disconnect all power to the system before installation, maintenance, cleaning, or any other system modification could result in serious injury or death.

AVERTISSEMENT : RISQUE DE MORT PAR DÉCHARGE ÉLECTRIQUE! Négliger de débrancher toutes les sources d'alimentation du système avant l'installation, l'entretien, le nettoyage ou toute autre modification du système peut causer des blessures graves ou la mort.

De-energize main feed to ArcSystem and follow appropriate Lockout/Tagout procedures as mandated by NFPA 70E. It is important to note that electrical equipment such as breaker panels can present an arc flash hazard if improperly serviced. This is due to the high amounts of short-circuit current available on the electrical supply to this equipment. Any work must comply with OSHA Safe Working Practices.



WARNING: RISK OF ELECTRIC SHOCK! Circuits that are installed without an accessible power disconnect device cannot be serviced or operated safely.

AVERTISSEMENT : RISQUE DE DÉCHARGE ÉLECTRIQUE! Il est imprudent d'utiliser ou de réparer les circuits installés sans qu'un dispositif de déconnexion de l'alimentation ne soit accessible.

Site Survey for Wireless Installations

ArcSystem transmitters and luminaires operate in the unlicensed 2.4 GHz band using the IEEE 802.15.4 standard. This band is shared with other technologies such as Wi-Fi, Bluetooth, low power sensor networks, wireless AV transmitters and some radio microphones.

Before commissioning a system, a wireless site survey is essential.

Gathering information on how your wireless lighting system will overlap with all other Wi-Fi traffic in the area will help determine setup of transmitters and which luminaires should be re-broadcasting, not just receiving wireless data.

Installation Requirements

- Indoor installation only: 0–40°C (32–104°F), 5–95% non-condensing humidity.
- Dry locations only.
- Installation location must support the weight of the luminaire, driver, and applicable mounting hardware.



CAUTION: *ArcSystem luminaires and drivers are not suitable for use in spaces with restricted air flow. Enclosing the luminaires or drivers temporarily or permanently may cause damage to the luminaires or drivers.*

Chapter 2

One-Cell Luminaire Installation

This chapter provides information on how to install ArcSystem Pro One-Cell luminaires in a standard ArcSystem installation.

Preparing the Ceiling for Recessed Luminaires

This section is specific to recessed (flush-mount) luminaires. For yoke-mounted luminaires, see [Installing One-Cell Yoke-Mounted Luminaires on page 16](#).

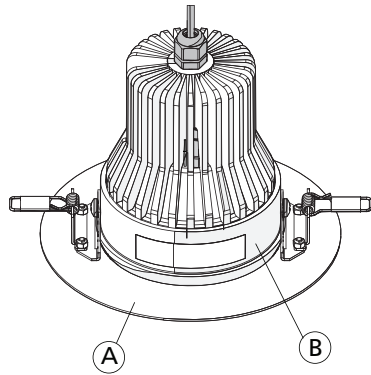
The luminaire retaining clips accommodate 3–24 mm (1/8–15/16 in) ceiling thickness. Cut a hole in the ceiling or ceiling tile to accommodate the luminaire’s retaining clip anchors. Cut the hole larger than the minimum hole diameter listed to the right and smaller than the luminaire’s outer bezel.

Luminaire	Minimum Hole Diameter
Pro One-Cell	16.5 cm (6-1/2 in)
Pro One-Cell High Output	17.0 cm (6-11/16 in)
Pro One-Cell Small	9.5 cm (3-3/4 in)
Pro One-Cell Micro	7.6 cm (3 in)

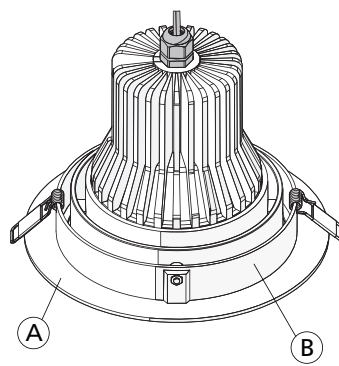


Note: Maximum ceiling thickness for safe use of the luminaire retaining clips is 24 mm (15/16 in).

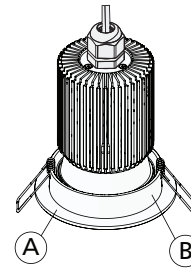
The images below provide an example of the bezels on the Pro One-Cell luminaires.



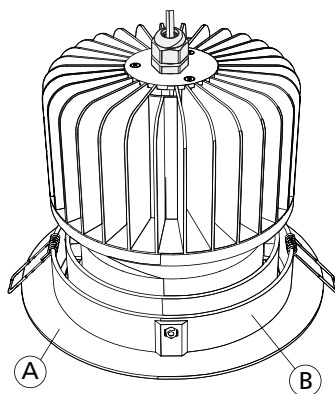
Pro One-Cell
fixed model



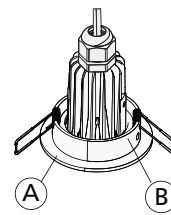
Pro One-Cell
adjustable model



Pro One-Cell Small
adjustable model



Pro One-Cell High Output
adjustable model



Pro One-Cell Micro
adjustable model

A	Outer bezel
B	Inner bezel

Installation Spacing - High Output Luminaires

If you are installing ArcSystem Pro One-Cell High Output luminaires, plan the luminaire and driver locations around the required spacing listed below.

Install with minimum spacings between

- Center-to-center of adjacent luminaires: 609.6 mm (24 in);
- Top of luminaire to overhead building member: 76.2 mm (3 in);
- Luminaire center to side building member: 304.8 mm (12 in);

Assurer les dégagements minimaux suivants

- Entre l'entraxe des luminaires adjacents 609.6 mm (24 po)
- Entre le dessus du luminaire et l'élément de charpente se trouvant au-dessus 76.2 mm (3 po)
- Entre le centre du luminaire et un élément de charpente 304.8 mm (12 po)

Extension Cables

Extension cables can be used between an ArcSystem Pro D1 Series, D2 Series, or D4 CC driver and a compatible ArcSystem Pro One-Cell, One-Cell Small, or One-Cell Micro luminaire. Extension cables are not compatible with ArcSystem Pro One-Cell High Output luminaires.



Part Number	Description
ARCDAHBC1	1 m (3 ft 3 in) extension cable
ARCDAHBC2	2 m (6 ft 7 in) extension cable
ARCDAHBC3	3 m (9 ft 10 in) extension cable
ARCDAHBC5	5 m (16 ft 5 in) extension cable
ARCDAHBC10	10 m (32 ft 10 in) extension cable



Note: *Maximum supported wire length between One-Cell luminaires and D1 Series, D2 Series, and D4 CC drivers is 15 m (49 ft, 3 in). Maximum supported wire length between a One-Cell High Output luminaire and a D1 HO Series driver is 1 m (3 ft, 3 in).*

Installation Accessories

Several installation accessories are available for purchase separate from the luminaire. Contact ETC or your authorized ETC dealer to purchase these accessories.

- **ArcSystem Recessed Luminaire Ceiling Bracket:** The ArcSystem Recessed Luminaire Ceiling Bracket is intended for use in new installations or when additional support is required for hanging a luminaire. The recessed ceiling bracket can be secured to the rail system in suspended ceilings or attached directly to building joists. The bracket and related hardware are designed to attach to 25 mm EMT conduit and 3/4 in EMT conduit, which is cut to size on-site and supplied by others. For more information, download the *ArcSystem Recessed Luminaire Ceiling Bracket Installation Guide* from etconnect.com or scan the QR code. 
- **ArcSystem Goof Ring:** The ArcSystem Goof Ring is a trim ring that conceals gaps caused by ceiling holes that are too large for the luminaire you are installing. For more information, download the *ArcSystem Goof Ring Installation Guide* from etconnect.com or scan the QR code. 

Installing One-Cell Recessed Luminaires

The installation procedure is similar for all recessed one-cell luminaires (fixed and adjustable). For Pro One-Cell yoke-mounted luminaires, continue on to [Installing One-Cell Yoke-Mounted Luminaires below](#).



WARNING: ArcSystem Pro One-Cell fixtures and drivers are **NON-IC** rated and therefore **NOT** suitable for installation in direct contact with combustible materials or thermal insulation.

DO NOT INSTALL INSULATION WITHIN 76 mm (3 in) OF ANY PART OF THE FIXTURE OR DRIVER.

AVERTISSEMENT : Les lampes Pro One-Cell et les drivers ArcSystem sont classés **NON-IC**, ils ne conviennent donc **PAS** pour une installation en contact direct avec des matières combustibles ou une isolation thermique.

NE PAS INSTALLER D'ISOLATION À MOINS DE 76 mm (3 po) DE TOUTE PARTIE DE LA LAMPE OU DU DRIVER (DISPOSITIF ÉLECTRONIQUE DE PUISSANCE).



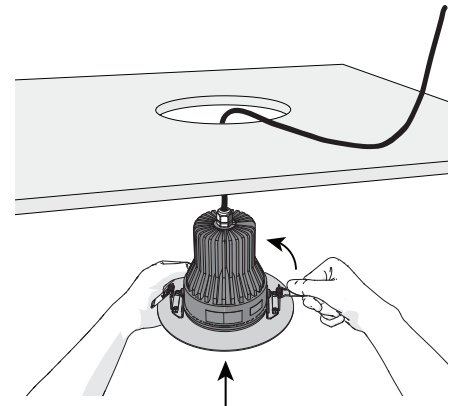
WARNING: Adjustable ArcSystem Pro One-Cell fixtures and adjustable ArcSystem Pro One-Cell Small fixtures are suitable for **Non-Fire Rated** installations **ONLY**.

AVERTISSEMENT : Les lampes Pro One-Cell ArcSystem réglables et Pro One-Cell Small ArcSystem réglables sont parfaites **UNIQUEMENT** pour les installations sans indice de résistance au feu.



Note: Make sure that the flexible electrical supply can extend through the ceiling opening so that the driver and luminaire can be inspected and serviced when needed.

1. Fold both retaining clips towards the luminaire body.
2. Place the luminaire through hole.
3. Release the clips, securing the luminaire in place.
4. When applicable, rotate the luminaire so it is roughly focused to its final resting position. This will assist in final focus procedures.



Installing One-Cell Yoke-Mounted Luminaires

1. Attach a C-clamp or other mounting hardware (not provided) to the yoke of the luminaire.
2. Attach the luminaire to a pipe or other approved mounting device.

Chapter 3

Standard System Multi-Cell Installation

This chapter provides information on how to install all standard variants of multi-cell luminaires in your ArcSystem installation.

Installing 100–240 V Multi-Cell Luminaires

100–240 V multi-cell yoke mounted luminaires include the Pro Two-Cell, Pro Four-Cell Linear, Pro Four-Cell Square, and Pro Eight-Cell. For 100–240 V Pro Four-Cell Round, see [Installing 100–240 V Four-Cell Round Luminaires on the next page](#). For 100–277 V luminaires, see [Installing 100–277 V Multi-Cell Luminaires on page 19](#).



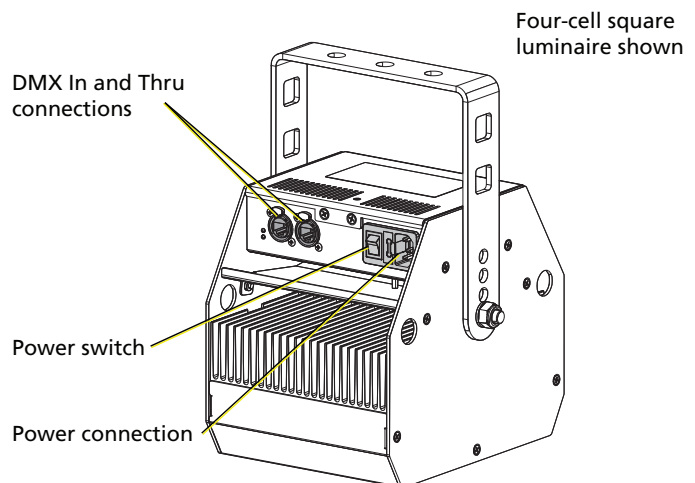
Note: Mounting hardware and installation location must support the weight of the luminaire.

DMX

DMX In and DMX Thru cables terminate to RJ45 connectors. DMX is installed in a daisy chain topology and includes one pair of wires (Data +, Data -) plus an ISO ground (common). ETC recommends Cat5e (or equivalent) minimum 0.2 mm² (24 AWG) conductors terminated to T568B standard. Up to 32 multi-cell luminaires can be connected per DMX run.

RJ45 Pinout Information

Pin	Description
1	Data +
2	Data -
7&8	ISO ground (common)



Installation Procedure

1. Attach a C-clamp or other mounting hardware (not provided) to the yoke of the luminaire.
2. Attach the luminaire to a pipe or other approved mounting device.
3. Insert or attach additional accessories, if desired.
4. Connect the provided power cable.
5. If using hard-wired DMX, plug the RJ45 connector into the DMX in port on the rear of the luminaire.
6. If linking additional luminaires via DMX, plug an RJ45 cable into the DMX thru port on the rear of the luminaire.



Note: ArcSystem luminaires are not self-terminating. You must terminate the last luminaire in line with a 120Ω resistor.

To purchase an RJ45 terminator, please contact your ETC customer service representative and request part number N4086.

- Toggle the power switch to "ON."
- Rotate the luminaire so it is roughly focused to its final resting position. This will assist in final focus procedures.

Installing 100–240 V Four-Cell Round Luminaires



Note: Mounting hardware and installation location must support the weight of the luminaire.

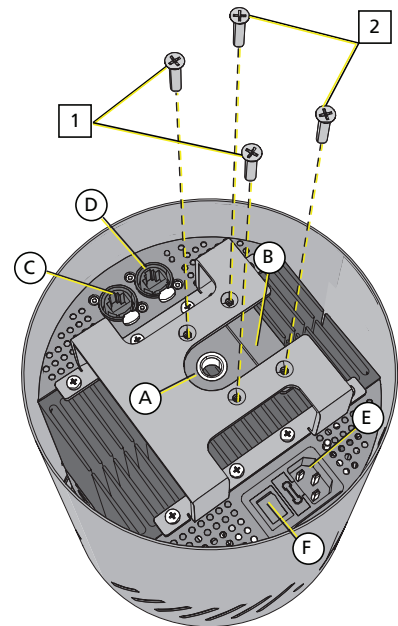
Installing to Threaded Rod

The luminaire attaches to threaded rod with a two-piece nut: a nut with a threaded hole for the rod (A in the illustration below), and a bar to secure the nut (B in the illustration below). Three types of nut are available to fit different threaded rods:

ETC Part Number	Included	Nut Thread Size
7490A3015	Yes	1/2-13 inch
7490A3124	Yes	M10x1.5
7490A3125	No, order separately	M12x1.75

Installation Steps

- Install the threaded nut (A, shown to the right) with the two provided M4x16 flathead screws.
- Install the bar (B) with the two provided M4x16 flathead screws.
- Attach the luminaire to installed threaded rod.
- Plug the provided power cable into the power input receptacle (E).
- If using hard wired DMX, plug in the RJ45 connector into the "DMX IN" port on the top of the luminaire (C).
- If linking additional luminaires via DMX, plug a RJ45 cable into the "DMX THRU" port on the rear of the luminaire (D).
- Toggle the power switch (F) to "ON".



A	Threaded nut
B	Bar
C	"DMX IN"
D	"DMX THRU"
E	Input power connector
F	Power switch
Not shown	Antenna receptacle on face of luminaire (wireless ArcMesh models only)



Note: ArcSystem luminaires are not self-terminating. You must terminate the last luminaire in line with a 120Ω resistor.

To purchase an RJ45 terminator, please contact your ETC customer service representative and request part number N4086.

Installing 100–277 V Multi-Cell Luminaires

This section provides the information needed to install 100-277 V Multi-Cell luminaires. For instructions on installing 100–277 V pendant fixtures, see [Installing a 100-277 V Four-Cell Pendant on page 23](#).

Supplies

The following supplies are required for installation, but not provided:

- ½ in flex conduit and conduit fittings
- Appropriate strain relief connectors for the installation type, as needed
- Phillips screwdriver
- 120Ω RJ45 terminator for DMX termination. See [Terminate DMX on page 22](#).
- Wire stripping and cutting tool



Note: Mounting hardware and installation location must support the weight of the luminaire, conduit hardware, and all cable required for installation.

Electrical and Wiring Specification

Install ArcSystem 100–277 V luminaire on a power distribution system with reliably identified earthed neutral and install a maximum 20 A circuit breaker on the line conductor.

ArcSystem 100–277 V luminaires and drivers accept 100–277 VAC, 50/60 Hz. ETC recommends installing all wiring in grounded metal conduit.

Wire and Terminal Specifications

Luminaire Type	Terminal / Connector	Conduit Entry	Wire Range / Specification	Strip Length
Two-Cell, Four-Cell Square, Four-Cell Linear, Eight-Cell	Power Input - line/neutral/ground	½ in conduit	0.2–4 mm (24–12 AWG)	11 mm (0.43 in)
	DMX In/Thru RJ45 Connectors	N/A	Cat5e (or equivalent) minimum 0.2 mm ² (24 AWG) conductors terminated to T568B standard	
Four-Cell Pendant	Power Input - line/neutral/ground	N/A	0.2–4 mm (24–12 AWG)	11 mm (0.43 in)
	DMX In/Thru	N/A	Belden 9729 (or equivalent) or Cat5e (or equivalent) minimum 0.2 mm ² (24 AWG) conductors terminated to T568B standard	



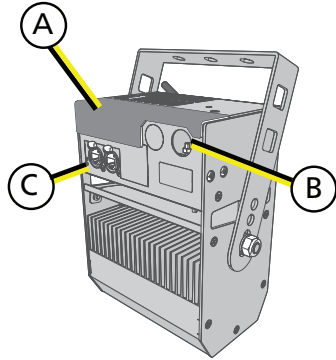
Note: ArcSystem 100–277 V Pro Two-Cell, Pro Four-Cell Square, Pro Four-Cell Linear, and Pro Eight-Cell luminaires are not self-terminating. You must terminate the last luminaire in line with a 120Ω resistor. To purchase an RJ45 terminator, contact your ETC customer service representative and request part number N4086.

ArcSystem 100–277V Pro Four-Cell Pendant luminaires have a DMX termination switch (see [Canopy DMX In and Thru on page 30](#)).

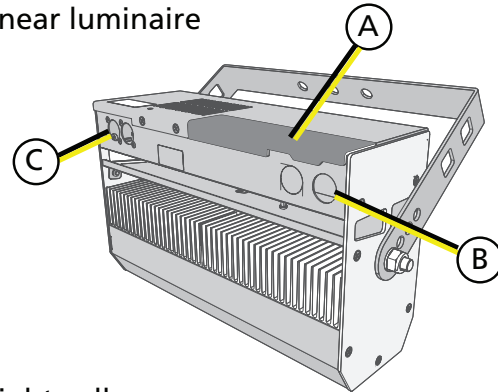
Install the Luminaire

Instructions for installing 100–277 V standard luminaires are below. See [Installing 100–277 V Emergency Multi-Cell Luminaires on page 33](#) for instructions on installing 100–277 V emergency luminaires.

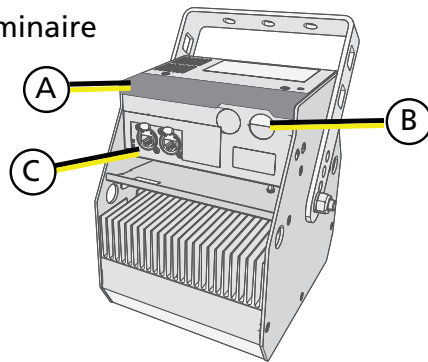
Two-cell luminaire



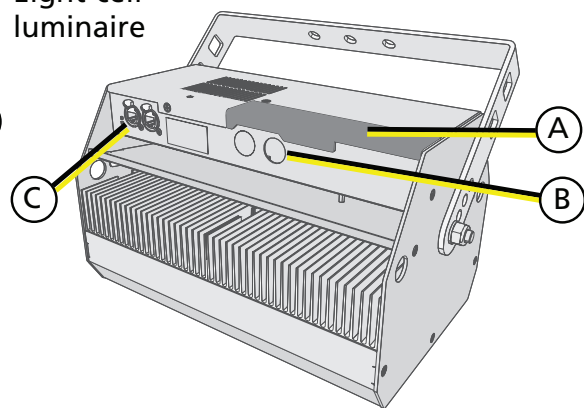
Four-cell linear luminaire



Four-cell square luminaire



Eight-cell luminaire



A	wiring compartment
B	conduit entry for 1/2 in conduit
C	DMX in and thru

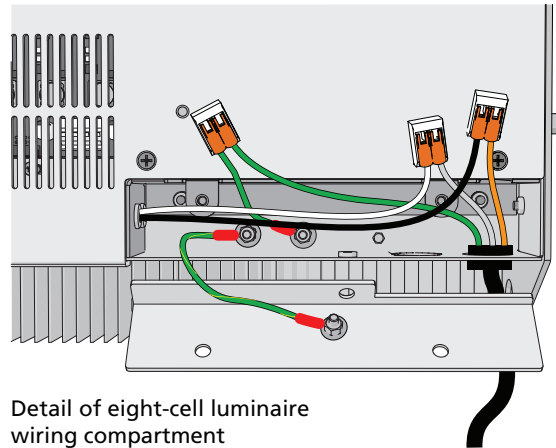
1. Make sure power is off at the main circuit breaker.
2. Attach a C-clamp or other mounting hardware (not provided) to the yoke of the luminaire.
3. Attach the luminaire to a pipe or other approved mounting device.
4. Insert or attach additional accessories, if desired.
5. Using a Phillips head screwdriver, remove the screws securing the cover to the luminaire's wiring compartment. Set the screws aside for later re-installation. The cover is grounded to the enclosure by a tether.
6. Install conduit hardware at the conduit entry in the side of the wiring compartment.

Terminate Power Wiring

ArcSystem 100–277 V systems are supplied with WAGO® connectors in the wiring compartment for convenient power connections in normal and emergency luminaires. Non-emergency ArcSystem 100–277 V systems are supplied with three two-position WAGO connectors (ETC part number J4717, WAGO part number 221-412). See [Installing 100–277 V Emergency Multi-Cell Luminaires on page 33](#) for more information about wiring for emergency installations.

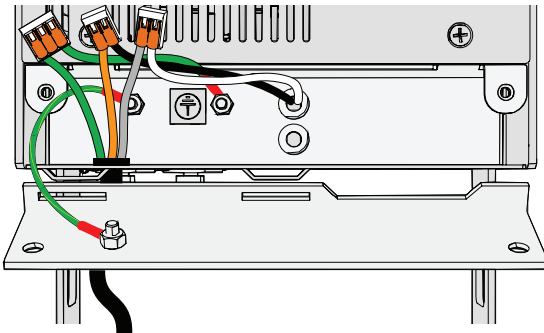
Factory Wire Colors

Model	Color	Type
North America	green/yellow	ground
North America	black	line/hot
North America	white	common
Europe	green/yellow	earth
Europe	brown	live
Europe	blue	neutral

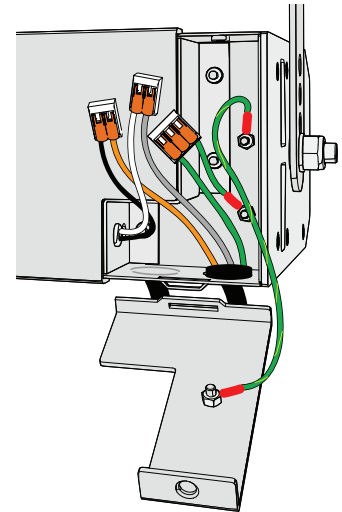


Detail of eight-cell luminaire wiring compartment

Detail of two-cell luminaire or four-cell square luminaire wiring compartment



Detail of four-cell linear luminaire wiring compartment



Note: Building wire colors may be different than shown.

Connect the Power Input

1. See [Wire and Terminal Specifications on page 19](#) for specification of wire and strip length. Prepare wires accordingly.
2. Remove the three screws securing the wiring compartment cover to the luminaire. The cover is grounded by a tether to the enclosure. Set the screws aside.
3. Terminate ground.
 - a. Locate the WAGO connector on the ground wire (green) connected to the bottom of the wiring compartment (Ⓛ).
 - b. Run a ground wire (typically green/yellow) through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the ground wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
4. Terminate neutral.
 - a. Locate the WAGO connector on the neutral wire (white) from the input.
 - b. Run a neutral wire (typically white or gray) through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the neutral wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
5. Terminate line (hot).
 - a. Locate the WAGO connector on the line (hot) wire (black) from the input.
 - b. Run a line (hot) wire through conduit to a free position on the WAGO connector.



Note: *Line (hot) wire color varies based on voltage and region but is typically black, brown, orange, or yellow.*

3. Lift up the orange clip, insert the line wire, and press the clip down onto the wire.
4. Tug gently to make sure the wire is secure.

Terminate DMX

DMX In and DMX Thru cables terminate to RJ45 connectors. DMX is installed in a daisy chain topology and includes one pair of wires (data +, data -) plus an ISO ground (common). ETC recommends Cat5e (or equivalent) minimum 24 AWG conductors terminated to T568B standard. Up to 32 luminaires can be connected per DMX run.

1. If using hard wired DMX, plug the RJ45 connector into the DMX in port on the rear of the luminaire.
2. If linking additional luminaires via DMX, plug a RJ45 cable into the DMX thru port on the rear of the luminaire.

RJ45 Pinout Information

Pin	Description
1	Data +
2	Data -
7&8	ISO ground (common)



Note: *ArcSystem 100–277 V Pro Two-Cell, Pro Four-Cell Square, Pro Four-Cell Linear, and Pro Eight-Cell luminaires are not self-terminating. You must terminate the last luminaire in line with a 120Ω resistor. To purchase an RJ45 terminator, contact your ETC customer service representative and request part number N4086.*

ArcSystem 100–277V Pro Four-Cell Pendant luminaires have a DMX termination switch (see [Canopy DMX In and Thru on page 30](#)).

Complete Installation

1. Check that all wires are terminated properly and secure in their terminals.
2. Tuck wiring inside the wiring compartment and replace the wiring compartment cover using the screws set aside previously.
3. Rotate the luminaire so it is roughly focused to its final resting position. This will assist in final focus procedures.

Installing a 100-277 V Four-Cell Pendant

The ArcSystem 100–277 V Pro Four-Cell Pendant must be assembled from the fixture and the canopy and the stem that is shipped separately. The canopy mounting plate installs onto a voltage-separated junction box. The canopy is supplied with WAGO connectors for convenient internal and external power connections in standard and emergency pendants.

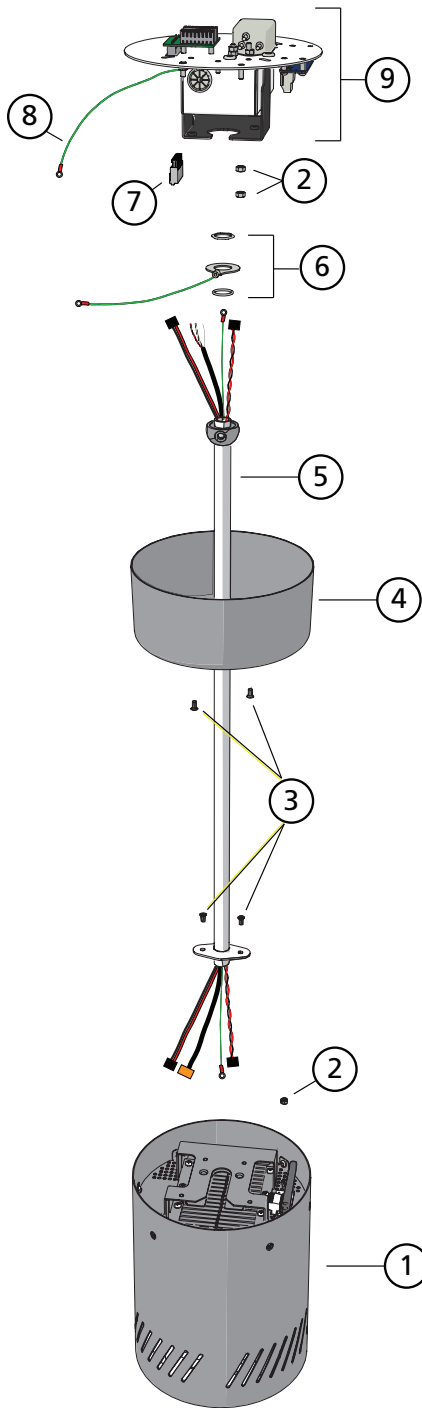
This section covers installation of standard ArcSystem 100–277 V Pro Four-Cell Pendants. For more information about installing emergency models, see [Installing a 100–277 V Emergency Four-Cell Pendant on page 36](#).



Note: *Mounting hardware and installation location must support the weight of the luminaire, conduit hardware, and all cable required for installation.*

Required Tools and Supplies:

- RACO® 232 junction box
- Phillips screwdriver
- Precision flatblade screwdriver
- Wire stripper and wire cutter
- 7 mm nut driver
- 1/8 inch (3.5 mm) hex key



100-277 V Four-Cell Pendant Components

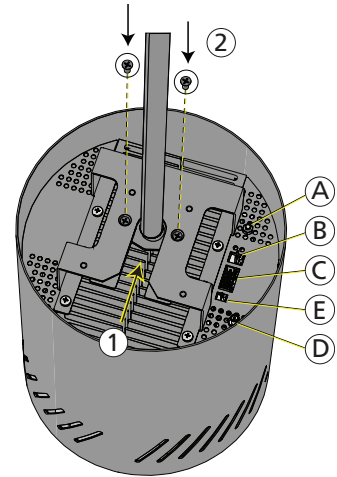
Item #	Description	Quantity
1	Cylinder	1
2	Nuts for ground stud connections (M4)	3
3	Screws for pendant assembly (M4 x 8 mm)	4
4	Canopy cover*	1
5	Stem with pre-run wiring†	1
6	Stem grounding harness with gasket and nut	1
7	Eight-position plug	1 (heat shrink included but not shown)
8	Canopy cover grounding harness*	1
9	Canopy interior	1
not shown	DMX termination kit	1
not shown	Two-position WAGO, ETC part number J4717, WAGO part number 221-412	standard pendant: 4, installed on canopy emergency pendant: 6 installed on canopy
not shown	Five-position WAGO, ETC part number J4630, WAGO part number 222-415	1, installed on canopy mounting plate
not shown	Voltage barrier to fit RACO 232 junction box	1, junction box is not included
not shown	Antenna‡	1

*The canopy cover (4) is sent tethered to the canopy interior (9) by the canopy cover grounding harness (8).
 †The stem (5) is shipped separately.
 ‡Four-Cell Pendants with RDM do not have an antenna.

Prepare the Cylinder and Stem

Connect the Stem to the Cylinder

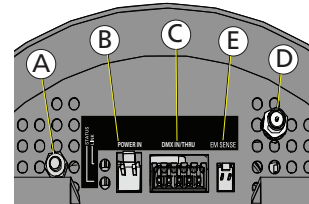
1. Slide the end of the stem with the threaded holes into the slot on the cylinder mounting bracket. See 1 in the illustration to the right.
2. Use two of the M4x8 mm Phillips screws to secure the stem to the cylinder. See item 3 at [100–277 V Four-Cell Pendant Components on the previous page](#). See 2 in the illustration to the right.



Wire the Cylinder

Several wire harnesses are pre-run through the stem. Install the connectors that exit the stem near the cylinder to the corresponding connectors on the cylinder.

1. Install the cylinder grounding harness onto the ground stud on the cylinder. The cylinder grounding harness is green and yellow with a ring terminal.
 - a. Install the ring terminal onto the ground stud (A in the illustrations to the right).
 - b. Use a 7 mm nut driver and one M4 nut from item 2 in the [100–277 V Four-Cell Pendant Components on the previous page](#) to secure the ring terminal onto the ground stud.
2. Install the plug on the black and red two-wire harness to two-pin connector B in the illustration to the right. Receptacle B is labeled "POWER IN".
3. Install the plug on the five-wire Belden cable to receptacle C in the illustration to the right. Receptacle C is labeled "DMX IN/THRU".
4. If you are installing a Four-Cell Pendant with wireless ArcMesh, install the antenna to receptacle D in the illustration to the right. See [Final Installation and Operation on page 39](#).



A	Ground stud
B	"POWER IN" emergency/maintained low-voltage input
C	"DMX IN/THRU"
D	Antenna receptacle*
E	"EM SENSE" normal/sense input
*Antenna receptacle not present on RDM luminaires.	



Note: The red-and-black twisted wire pair provides a low-voltage sense feed to an emergency pendant and has no function in a standard pendant. If you are installing a standard pendant, you can connect the wire pair to the "EM SENSE" input (E in the illustration at above right) for convenience. If you are installing an emergency pendant, follow the instructions at [Installing a 100–277 V Emergency Four-Cell Pendant on page 36](#).

Align the Half-Ball on the Stem

You can adjust the orientation of the four cells of the pendant luminaire with respect to the canopy by rotating the half-ball on the stem. For example, if you are installing multiple ArcSystem Pro Four-Cell Pendants, you can rotate the half-ball on each pendant luminaire stem to the same position so that the four cells of each pendant luminaire are oriented the same way.

1. Use the 1/8 inch (3.5 mm) hex key to loosen the set screw.
2. Rotate the half-ball of each pendant stem to point the same direction with respect to the luminaire cylinder. For example, align the set screw on the half-ball with the slot on the cylinder mounting bracket.

3. Tighten the hex head screw to secure the position of the half-ball on the stem.
4. Repeat this process for each pendant.

Remove the Canopy Cover

The canopy cover is tethered to the canopy mounting plate by the canopy cover grounding harness. You must temporarily disconnect the canopy cover grounding harness before proceeding with the rest of the installation.

1. Using the Phillips screwdriver, remove the two screws securing the canopy cover and remove the cover from the canopy.
 - **Set the screws aside for later re-installation.**
2. Detach the canopy cover grounding harness inside the canopy cover.
 - Use a 7 mm nut driver to remove the nut on the ground stud inside the canopy cover.
 - **Set the nut aside for later re-installation.**
 - Leave the canopy cover grounding harness attached to the canopy mounting plate at the other end.

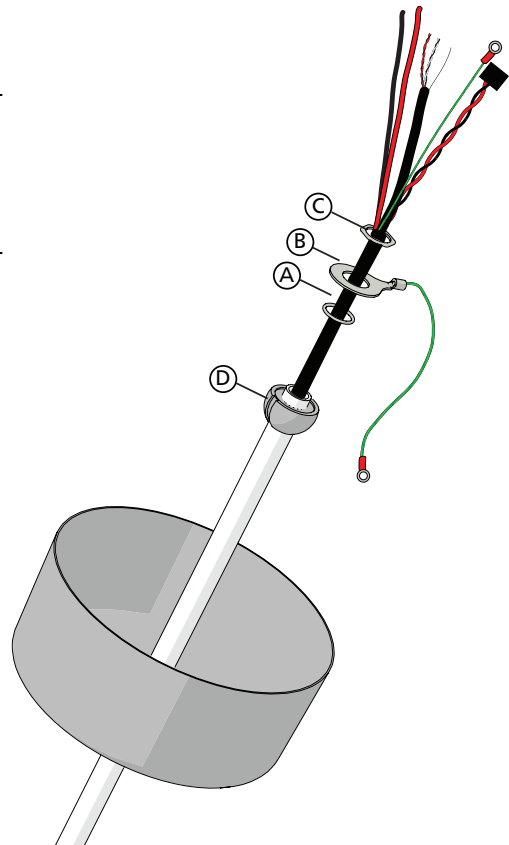
Install the Stem Grounding Harness

The stem grounding harness is shipped with the cylinder and canopy.



Note: You must slide the canopy cover over the stem as instructed in step 1 (below) before installing the stem grounding harness.

1. Slide the canopy cover onto the stem as shown to the right, threading the connectors on the wiring harnesses through the hole in the canopy cover.
 - When oriented correctly, the outside of the canopy cover faces the cylinder.
 - The canopy cover can rest at the bottom of the stem, on top of the cylinder, until all wiring is completed.
2. Thread the wiring harness connectors through the parts below in this order:
 - a. Gasket (A, illustrated to the right)
 - b. Large ring terminal on the grounding harness (B, illustrated to the right)
 - c. Large nut (C, illustrated to the right)
3. Hand tighten the large nut onto the threads at the top of the stem, securing the gasket and large ring terminal in place.
 - The grounding harness should point away from the slot on the half-ball (D, illustrated to the right). See [Hang the Stem in the Canopy on page 29](#) for an additional illustration.



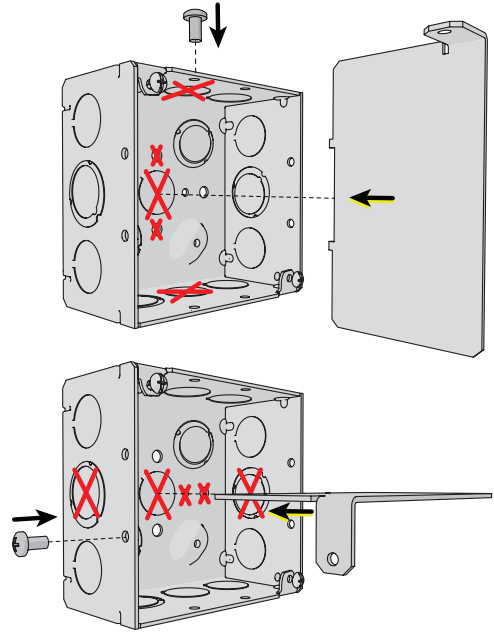
A	Gasket
B	Large ring terminal on the canopy cover grounding harness
C	Large nut
D	Slot on the half-ball

Prepare the Back Box



Note: The Four-Cell Pendant canopy can be installed directly on a 4 inch back box (RACO 232, not supplied). The canopy cannot be installed on one-gang back boxes or trim rings.

The Four-Cell Pendant includes a voltage barrier to separate the data network from the line voltage inside the back box. Install the voltage barrier in the back box with the provided screw (see images at right). The voltage barrier blocks two or more through holes in the back of the junction box, depending on how it is oriented, plus the center conduit knockout in the back of the junction box and the center knockouts on two sides of the junction box. The blocked holes and knockouts are marked with "X" in the illustration to the right.



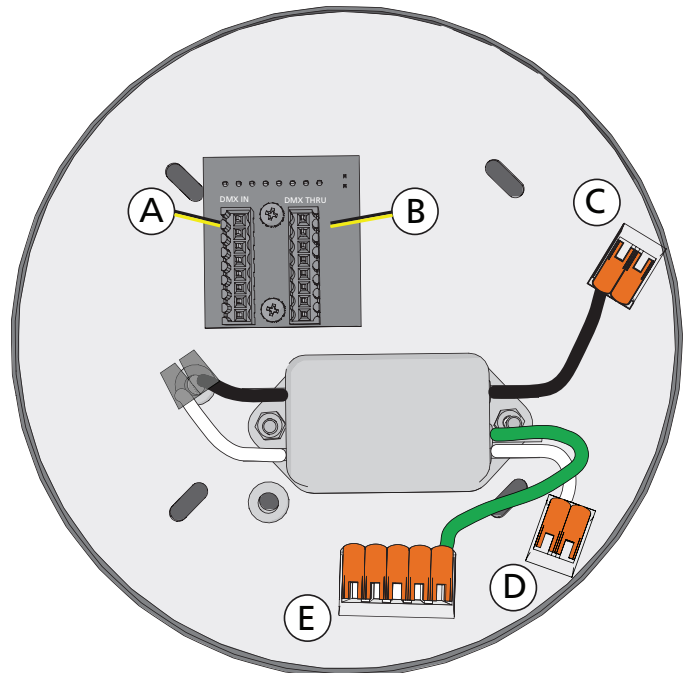
Note: DMX control is a Class 2 circuit. DMX wiring cannot be run through the same conduit as line voltage power supply conductors. Separate the line voltage from the data side in the back box. Install the voltage barrier provided by ETC.

Terminate Building Wiring to the Canopy

A	DMX In
B	DMX Thru
C	Power line/hot (black)
D	Power common (white)
E	Ground (green)

Terminate Power

1. See [Electrical and Wiring Specification on page 19](#) for specification of wire and strip length. Prepare wires accordingly.



2. Terminate ground.
 - a. Locate the WAGO connector on the ground wire (green).
 - b. Run a ground wire (typically green/yellow) through conduit, into the junction box, and to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the ground wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
3. Terminate neutral.
 - a. Locate the WAGO connector on the neutral wire (blue/white).
 - b. Run a neutral wire (typically white or gray) through conduit, into the junction box, and to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the neutral wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
4. Terminate line (hot).
 - a. Locate the WAGO connector on the line (hot) wire (brown/black).
 - b. Run a line (hot) wire through conduit, into the junction box, and to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the line (hot) wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
5. Insert the building line wire (hot) into a terminal on the WAGO with the black wire on the canopy (C in the illustration above).

Factory Wire Colors

Model	Color	Type
North America	green/yellow	ground
North America	black	line/hot
North America	white	common
Europe	green/yellow	earth
Europe	brown	live
Europe	blue	neutral



Note: Building wire color varies based on voltage and region, but line (hot) is typically black, brown, orange, or yellow.

DMX In and Thru



Note: Stem length will impact total length calculations for DMX runs. Add two times the stem length to DMX run length calculations for each Four-Cell Pendant in a DMX run. DMX In wiring runs from the canopy of the Four-Cell Pendant through the stem to the fixture body, and DMX Thru wiring runs from the fixture body through the stem to the canopy.

Up to 32 DMX/RDM devices can be daisy-chained together per data run.

Follow the DMX termination kit instructions provided with the product to terminate the control wiring.

Termination Switch

Terminate DMX/RDM data signal for the last DMX/RDM device in the data run by setting the termination switch on the termination board to "ON". All other devices in the data run maintain the factory default termination switch setting: "OFF". See [Canopy DMX In and Thru on page 30](#).

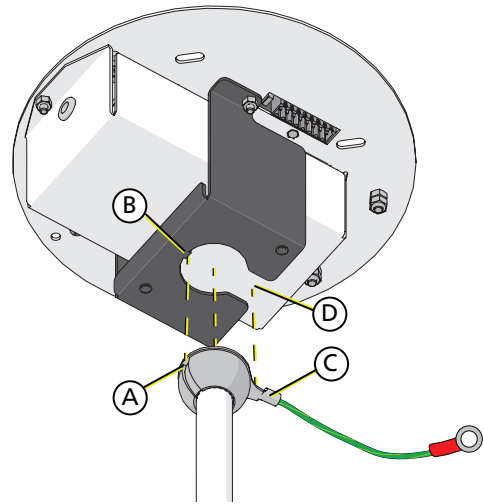
Install the Canopy Mounting Plate on the Back Box

Attach the canopy mounting plate to the back box using the through-hole slots on the canopy mounting plate.

Hang the Stem in the Canopy

Slide the half-ball end of the stem into the slot on the canopy.

- Match the slot in the half-ball to the notch on the mounting bracket. (Match A to B in the illustration to the right.)
- The large ring terminal should be oriented so that the ground harness fits through the slot on the mounting bracket. (C should fit through D in the illustration to the right.)
- If the stem grounding harness is not aligned as shown to the right, loosen the large nut at the top of the stem and rotate the large ring terminal on the stem grounding harness, then hand tighten the large nut to secure the stem grounding harness in the correct position.



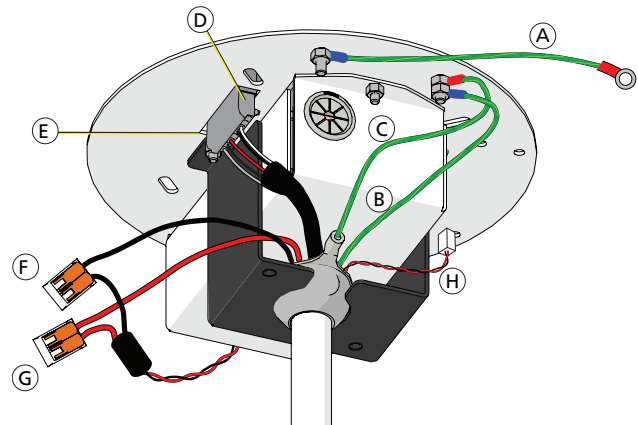
A	Slot in the half-ball
B	Notch in the canopy bracket
C	Stem grounding harness
D	Slot in the canopy bracket

Terminate Wiring Inside the Canopy



CAUTION: *The stem can slide free of the canopy until the stem grounding harness is connected and the canopy cover is reinstalled. Use caution while wiring.*

A	Canopy cover grounding harness (green/yellow)
B	Cylinder grounding harness (green/yellow)
C	Stem grounding harness (green/yellow)
D	Eight-position DMX plug
E	DMX termination switch
F	Low-voltage maintained power - (black)
G	Low-voltage maintained power + (red)
H	Low-voltage sense feed (red and black, not connected)



Note: *The red-and-black low-voltage sense feed (H in the illustration) is provided for an emergency pendant and has no function in a standard pendant. If you are installing a standard pendant, you can leave the wire pair disconnected.*

Ground

You must terminate two grounding harnesses to ground studs on the canopy mounting plate:



Note: *There are already ground connections installed by the factory on a ground stud on the canopy mounting plate. Install the additional grounding harnesses listed below to the empty stud as shown in the illustration above.*

1. Install the stem grounding harness (C in the illustration at [Terminate Wiring Inside the Canopy on the previous page](#)) onto the empty ground stud on the canopy mounting plate.
 - a. Install the ring terminal onto the ground stud.
 - b. Use a 7 mm nut driver and one M4 nut (item 2 in the illustration at [100–277 V Four-Cell Pendant Components on page 24](#)) to secure the ring terminal onto the ground stud.
2. Install the cylinder grounding harness (B in the illustration at [Terminate Wiring Inside the Canopy on the previous page](#)) onto the same ground stud, above the nut installed in step 1b.
 - a. Install the ring terminal onto the ground stud above the existing ring terminal and nut.
 - b. Use a 7 mm nut driver and one M4 nut (item 2 in the illustration at [100–277 V Four-Cell Pendant Components on page 24](#)) to secure the ring terminal onto the ground stud.

Canopy DMX In and Thru



Note: *The DMX cable has a **black-and-red** twisted pair, a **black-and-white** twisted pair, and a shield. Make sure to insert the black wires in the correct terminals listed below or DMX will not function correctly.*

Terminate the pre-stripped ends of the five-wire Belden cable to the eight-position plug (item 7 in the illustration at [100–277 V Four-Cell Pendant Components on page 24](#)).

1. Slide the 50 mm (2 in) piece of the 10 mm (3/8 in) heat shrink tubing onto the cable. Do not shrink the heat shrink tubing yet.
2. Insert the five wires into the eight-position plug according to the table to the right.
10. Check that all wires are securely terminated.
11. Center the heat shrink tubing on the end of the cable jacket and the bases of all the wires in the cable. Shrink the heat shrink tubing.
12. Insert the eight-position plug into the mating receptacle on the DMX board inside the canopy (D in the illustration at [Terminate Wiring Inside the Canopy on the previous page](#)).

Position	Wire Color
1	shield (gray)
2	black wire from black-and-red twisted pair
3	red
4	unused
5	black wire from black-and-white twisted pair
6	white
7	unused
8	unused



Note: *Terminate DMX/RDM data signal for the last DMX/RDM device in the data run by setting the yellow termination switch on the termination board (E in the illustration at [Terminate Wiring Inside the Canopy on the previous page](#)) to ON. All other devices in the data run maintain the factory default termination switch setting OFF.*

Canopy Low-Voltage Power

The low-voltage power wiring consists of red and black wires that have pre-stripped ends. Connect the red and black wires to the WAGO connectors that are wired to the power supply (F and G in the illustration at [Terminate Wiring Inside the Canopy on page 29](#)).

1. Insert the red (+) wire into the empty terminal on the WAGO with the red wire.
2. Insert the black (-) wire into the empty terminal on the WAGO with the black wire.



Note: *The red-and-black twisted wire pair provides a low-voltage sense feed to an emergency pendant and has no function in a standard pendant. If you are installing a standard pendant, you can leave the wire pair disconnected.*

Complete Canopy Installation

1. Slide canopy cover up to the top of the stem.
2. Reconnect the canopy cover grounding harness (A in the illustration at [Terminate Wiring Inside the Canopy on page 29](#)).
 - a. Use a 7 mm nut driver and the nut removed in Step 2 of [Remove the Canopy Cover on page 26](#) to secure the canopy cover grounding harness onto the ground stud inside the canopy cover.
3. Fit the canopy cover to the canopy, ensuring that wires are not pinched in the canopy stem slot or the around the perimeter of the canopy cover.
4. Install canopy cover with two M4x8 mm Phillips screws (item 3 in the illustration at [100–277 V Four-Cell Pendant Components on page 24](#)).

Chapter 4

Installing Emergency Multi-Cell Luminaires

With the exception of power input terminations, ArcSystem emergency system installation requirements are the same as those of the standard ArcSystem.

Installing Four-Cell Round Emergency Luminaires

ArcSystem Pro Four-Cell Round emergency luminaires are supplied with hard-wired power cables with NEMA 5-15 connectors for North America and bare ends for Europe and the rest of the world. The cables are labeled near the strain reliefs for Maintained Input and Sense Input.

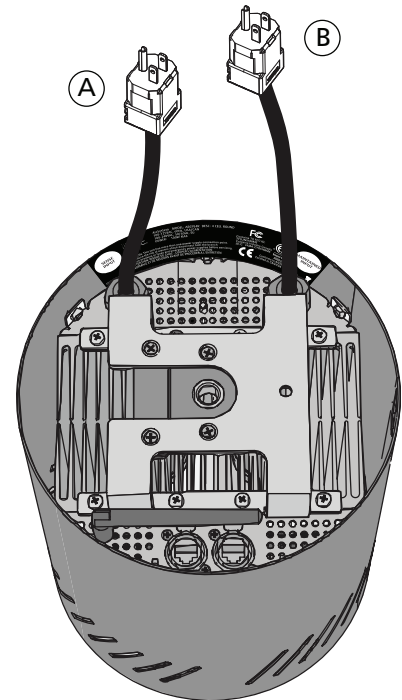
Aside from having multiple power cables, these luminaires are installed in the same way that standard ArcSystem Pro Four-Cell Round luminaires are installed. See [Installing 100–240 V Four-Cell Round Luminaires on page 18](#).



Note: Luminaires with NEMA 5-15 connectors are only for use in 100–125 V applications.

Factory Wire Colors

Model	Color	Type
Europe	green/yellow	earth
Europe	brown	live
Europe	blue	neutral

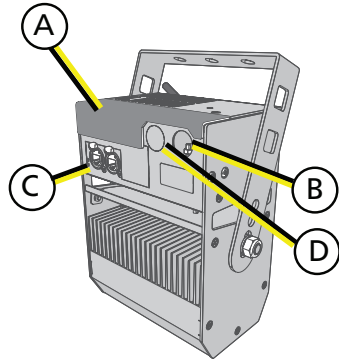


A	Sense Input*
B	Maintained Input*
* European models have cables with bare ends. Actual cable length is 2.1 m (7 ft) for all models.	

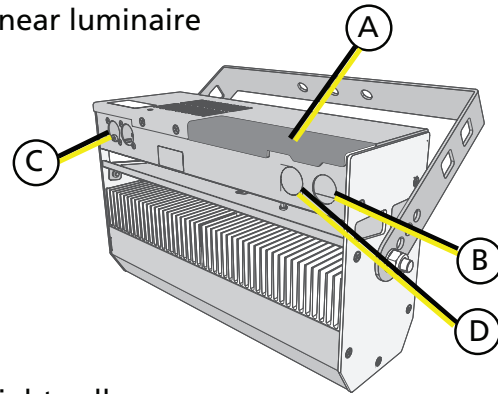
Installing 100–277 V Emergency Multi-Cell Luminaires

Instructions for installing 100–277 V emergency luminaires are below. See [Installing 100–277 V Multi-Cell Luminaires on page 19](#) for instructions on installing 100–277 V standard luminaires. For instructions on installing the 100–277 V emergency pendant, see [Installing a 100–277 V Emergency Four-Cell Pendant on page 36](#).

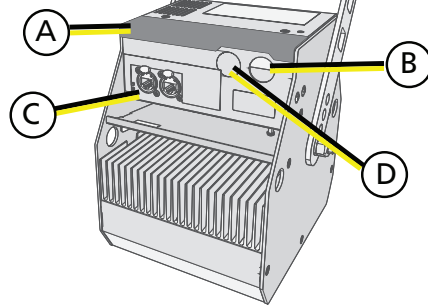
Two-cell luminaire



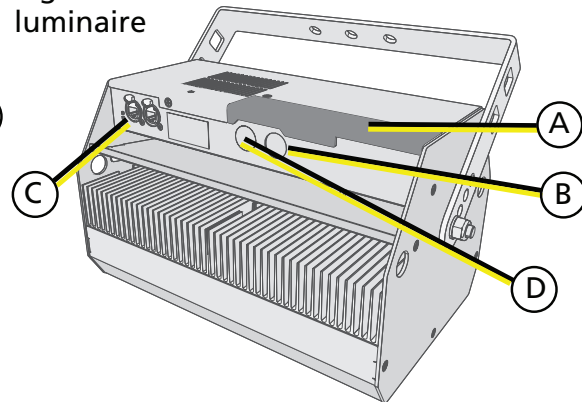
Four-cell linear luminaire



Four-cell square luminaire



Eight-cell luminaire



A	wiring compartment
B	conduit entry for 1/2 in conduit
C	DMX in and thru
D	knockout for 1/2 in conduit

With the exception of power input terminations, ArcSystem 100–277 V emergency system installation requirements are the same as those of ArcSystem 100–277 V non-emergency systems. Complete the installation as follows, referencing these sections for installation details:

1. Complete the steps of [Installing 100–277 V Multi-Cell Luminaires on page 19](#).
2. Install conduit hardware at the knockout or second hole in the side of the wiring compartment.



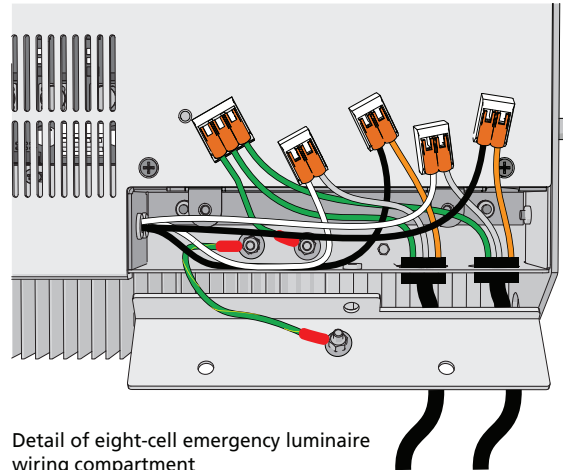
Note: Use flexible metal conduit when installing and focusing 277 V emergency multi-cell luminaires.

Terminate Power Wiring

ArcSystem 100–277 V systems are supplied with WAGO connectors in the wiring compartment for convenient power connections in normal and emergency luminaires. ArcSystem 100–277 V emergency systems are supplied with one three-position WAGO (ETC part number J4629, WAGO part number 221-413) and four two-position WAGO connectors (ETC part number J4717, WAGO part number 221-412).

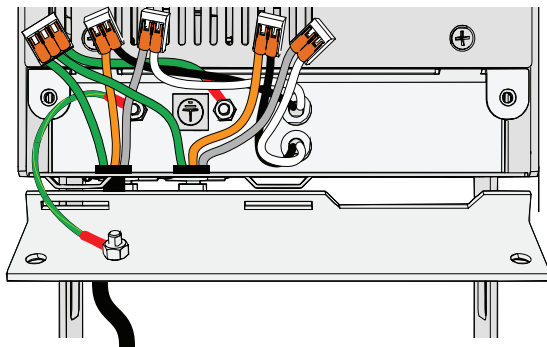
Factory Wire Colors

Model	Color	Type
North America	green/yellow	ground
North America	black	line/hot
North America	white	common
Europe	green/yellow	earth
Europe	brown	live
Europe	blue	neutral

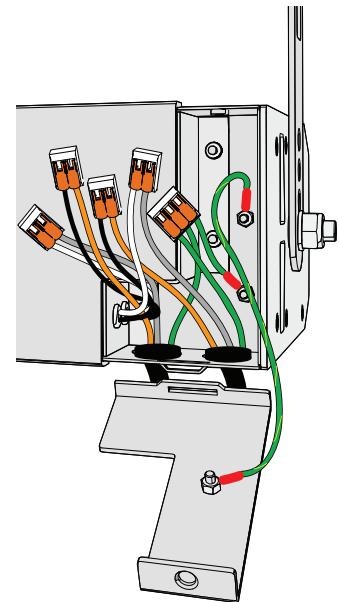


Detail of eight-cell emergency luminaire wiring compartment

Detail of two-cell emergency luminaire or four-cell square emergency luminaire wiring compartment



Detail of four-cell linear emergency luminaire wiring compartment



Note: Building wire colors may be different than shown.

Connect the Maintained Input

1. See [Electrical and Wiring Specification on page 19](#) for specification of wire and strip length. Prepare wires accordingly.
2. Remove the screws securing the wiring compartment cover to the luminaire. The cover is grounded to the enclosure by a tether. Set the screws aside.
3. Terminate ground.
 - a. Locate the WAGO connector on the ground wire (green) connected to the bottom of the wiring compartment (Ⓛ).
 - b. Run a ground wire (typically green/yellow) through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the ground wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
4. Terminate neutral to the Maintained input.
 - a. Locate the WAGO connector on the neutral wire (white) from the input labeled Maintained.
 - b. Run a neutral wire (typically white or gray) through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the neutral wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
5. Terminate line (hot) to the Maintained input.
 - a. Locate the WAGO connector on the line (hot) wire (black) from the input labeled Maintained.
 - b. Run a line (hot) wire through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the line wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.



Note: *Line (hot) wire color varies based on voltage and region but is typically black, brown, orange, or yellow.*

Connect the Sense Input

1. Make sure power is off at the main circuit breaker.
2. See [Electrical and Wiring Specification on page 19](#) for specification of wire and strip length. Prepare wires accordingly.
3. Terminate ground.
 - a. Locate the WAGO connector on the ground wire (green) connected to the bottom of the wiring compartment.
 - a. Run a ground wire (typically green/yellow) through other conduit to a free position on the WAGO connector.
 - b. Lift up the orange clip, insert the ground wire, and press the clip down onto the wire.
 - c. Tug gently to make sure the wire is secure.
4. Terminate neutral to the Sense input.
 - a. Locate the WAGO connector on the neutral wire (white) from the input labeled Sense.
 - b. Run a neutral wire (typically white or gray) through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the neutral wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.

5. Terminate line (hot) to the Sense input.
 - a. Locate the WAGO connector on the line (hot) wire (black) from the input labeled Sense.
 - b. Run a line (hot) wire (typically brown, orange, or yellow) through conduit to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the line wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.
6. Continue by connecting DMX (see [Terminate DMX on page 22](#)), then complete the installation.

Complete Installation

1. Connect DMX (see [Terminate DMX on page 22](#)).
2. Check that all wires are terminated properly and secure in their terminals.
3. Tuck wiring inside the wiring compartment and replace the wiring compartment cover using the screws set aside previously.
4. Rotate the luminaire so it is roughly focused to its final resting position. This will assist in final focus procedures.

Installing a 100–277 V Emergency Four-Cell Pendant

With the exception of input power terminations, emergency Four-Cell Pendant fixture installation requirements are the same as those of the standard Four-Cell Pendant fixture. Complete the installation as follows, referencing [Installing a 100-277 V Four-Cell Pendant on page 23](#) for installation details.

Prepare the Cylinder and Stem

Complete the following steps as directed for the standard Four-Cell Pendant:

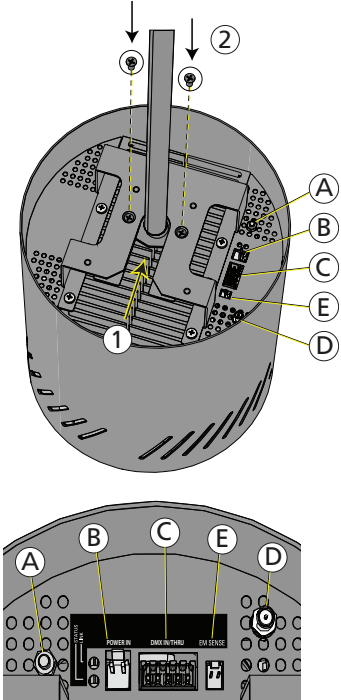
1. [Connect the Stem to the Cylinder on page 25](#)
2. [Wire the Cylinder on page 25](#)

After completing the steps at the link above, install the connector for the sense input (twisted pair, red-and-black, two-wire harness) onto the mating receptacle on the cylinder (E in the illustration to the right).

3. [Remove the Canopy Cover on page 26](#)
4. [Install the Stem Grounding Harness on page 26](#)

Prepare the Back Box

Install the voltage barrier as directed in [Prepare the Back Box on page 27](#).



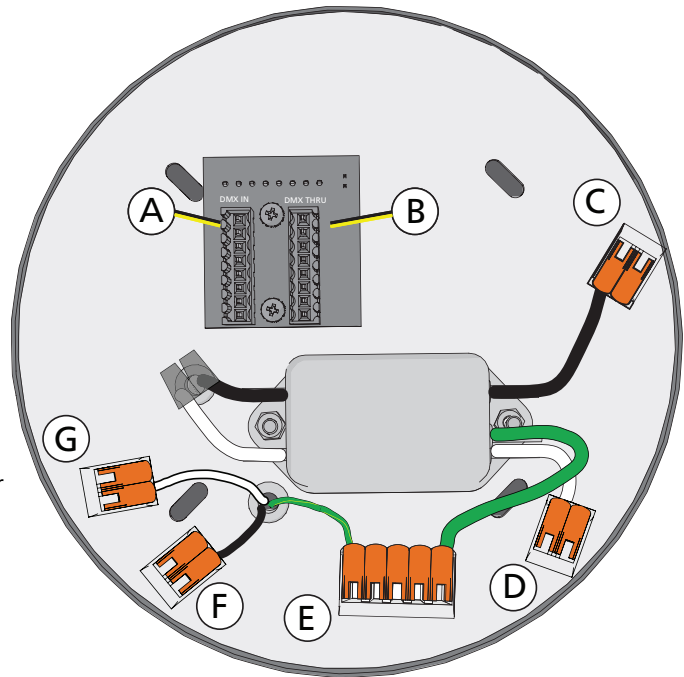
A	Ground stud
B	"POWER IN" emergency/ maintained low-voltage input
C	"DMX IN/THRU"
D	Antenna receptacle*
E	"EM SENSE" normal/sense input

*Antenna receptacle not present on RDM luminaires.

Terminate Building Wiring to the Canopy

See [Emergency System Overview on page 10](#) for an explanation of Sense (normal) and Maintained (normal/emergency) feeds.

A	DMX In
B	DMX Thru
C	Emergency/maintained power line/hot (black)
D	Emergency/maintained power common (white)
E	Ground (green/yellow)
F	Normal/sense line/hot (black)
G	Normal/sense common (white)



Terminate Power

Connect maintained/emergency power to the Maintained Input on the canopy as instructed in [Terminate Power on page 27](#).

Connect normal/sense power to the sense input on the canopy.

- See [Electrical and Wiring Specification on page 19](#) for specification of wire and strip length. Prepare wires accordingly.
- Terminate ground.
 - Locate the WAGO connector on the ground wire (green, E in the illustration above).
 - Run a ground wire (typically green/yellow) through conduit, into the junction box, and to a free position on the WAGO connector.
 - Lift up the orange clip, insert the ground wire, and press the clip down onto the wire.
 - Tug gently to make sure the wire is secure.
- Terminate neutral.
 - Locate the WAGO connector on the neutral wire (white, D in the illustration above).
 - Run a neutral wire (typically white or gray) through conduit, into the junction box, and to a free position on the WAGO connector.
 - Lift up the orange clip, insert the neutral wire, and press the clip down onto the wire.
 - Tug gently to make sure the wire is secure.

Factory Wire Colors

Model	Color	Type
North America	green/yellow	ground
North America	black	line/hot
North America	white	common
Europe	green/yellow	earth
Europe	brown	live
Europe	blue	neutral

4. Terminate line (hot).
 - a. Locate the WAGO connector on the line (hot) wire (black, C in the illustration above).
 - b. Run a line (hot) wire through conduit, into the junction box, and to a free position on the WAGO connector.
 - c. Lift up the orange clip, insert the line (hot) wire, and press the clip down onto the wire.
 - d. Tug gently to make sure the wire is secure.



Note: Building wire color varies based on voltage and region, but line (hot) is typically black, brown, orange, or yellow.

DMX In and Thru

Terminate DMX In and Thru as instructed in [DMX In and Thru on page 28](#).

Install the Canopy Mounting Plate to the Back Box

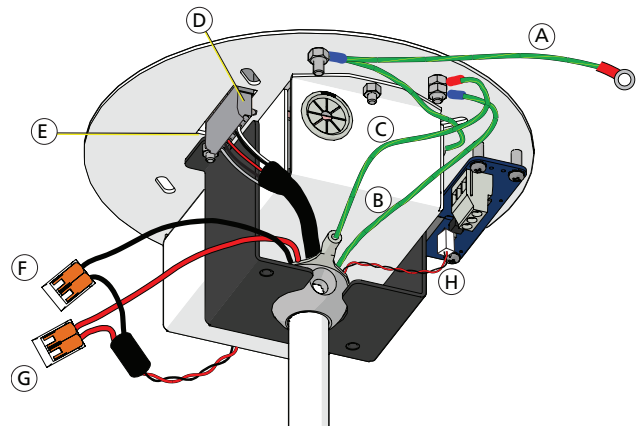
Install the canopy mounting plate to the back box as instructed in [Install the Canopy Mounting Plate on the Back Box on page 29](#).

Hang the Stem in the Canopy

Connect the stem to the canopy as instructed in [Hang the Stem in the Canopy on page 29](#).

Terminate Wiring Inside the Canopy

A	Canopy cover grounding harness (green/yellow)
B	Cylinder grounding harness (green/yellow)
C	Stem grounding harness (green/yellow)
D	Eight-position DMX plug
E	DMX termination switch
F	Low-voltage maintained power - (black)
G	Low-voltage maintained power + (red)
H	Low-voltage sense feed (red and black)



1. Terminate ground as instructed in [Ground on page 30](#).
2. Terminate low-voltage maintained power as instructed in [Canopy Low-Voltage Power on page 31](#).
3. Terminate DMX In and Thru as instructed in [Canopy DMX In and Thru on page 30](#).



Note: Terminate DMX/RDM data signal for the last DMX/RDM device in the data run by setting the yellow termination switch on the termination board (E in the illustration) to ON. All other devices in the data run maintain the factory default termination switch setting OFF.

4. Terminate the red and black sense feed harness to the sense board (H in the illustration above).

Complete Canopy Installation

Complete canopy installation as instructed in [Complete Canopy Installation on page 31](#).

Chapter 5

Final Installation and Operation

Wireless ArcSystem D1, D1 HO, D2, and D4 drivers and wireless ArcSystem multi-cell luminaires are supplied with a 5 dB antenna providing 90 degree omni-directional coverage. Install this antenna to the antenna receptacle.



Note: *Incorrect installation of recessed luminaires may cause output to turn on and off periodically due to built-in protection against overheating. Leave the lamp on for several hours to check for overheating caused by improper installation. The driver can overheat even if the lamp is off.*

Power Up Procedure

1. Check that luminaire power switch is on, if applicable.
2. Check the DMX control source to ensure proper installation and termination per the manufacturer's instructions.
3. Apply power at the main circuit breaker.

After the power up procedure, the luminaire will light.



Note: *When commissioning a system installation, check all ArcSystem Drivers and multi-cell luminaires to ensure that the latest firmware is present. If the firmware is not up to date, upgrade it following the instructions at [Updating the Luminaire Firmware](#) below.*



Note: *All ArcSystem luminaires are factory set to provide 100% output level. This allows an electrical contractor to check that all products are properly installed and wired. During system commissioning, the certified ETC technician will remove this setting and configure DMX addresses for normal use. During normal use after commissioning is complete, ArcSystem luminaires will light if the DMX Control level is greater than 0.*

Updating the Luminaire Firmware

When commissioning a system installation, check all ArcSystem drivers and multi-cell luminaires to ensure that the latest firmware is present. If the firmware is not up to date, upgrade it following the instructions below for your luminaire type.

Wireless ArcMesh Luminaires

Upgrade luminaire firmware using the ArcSystem Configuration Software. The fixture firmware file and ArcSystem Configuration Software are available for free at etconnect.com.

RDM Luminaires

Upgrade luminaire firmware using ETC Concert and ETC UpdaterAtor software before commissioning is completed. For more information on UpdaterAtor, download the *UpdaterAtor Software Quick Guide* for free at etconnect.com.

DMX System Control

ArcSystem with ArcMesh can be installed and controlled over the wireless ArcMesh protocol, hard wired DMX, or a hybrid of the two, making it a great solution for both new construction and retrofit situations.

ArcSystem RDM Systems can be controlled over wired DMX from a lighting console or ETC Concert software. Concert is available for free download at etcconnect.com/Concert.

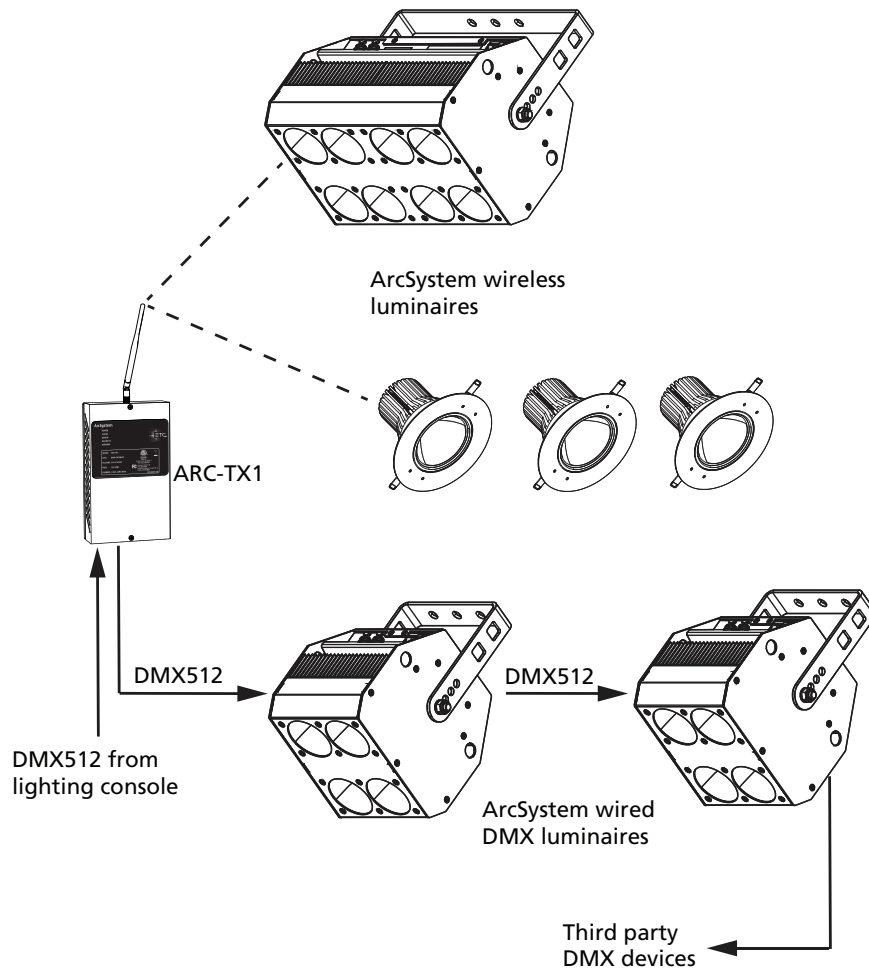
- ArcSystem is compliant with DMX 512-A (ANSI E1.11-2008 (R2013)).
- DMX loss behavior is hold last look.

For wired DMX installation, each luminaire can be addressed to any one of the 512 DMX addresses up to the maximum device limit of 32 devices on each DMX line. For wireless DMX installation, there are up to 64 control channels available. See [TX1 Installation on page 45](#).

Channels can be grouped and programmed into presets per the needs of your space. Groups and presets can be recalled through a lighting console or other devices.

Programming groups and presets is done through the configuration tool at time of system commissioning. This programming will be done by an ETC certified technician. For more information see [Commissioning a Wireless ArcSystem on the facing page](#).

Both wired and wireless products can be used within a single system. The following graphic shows an example of how a system with wired luminaires, wireless luminaires, and a transmitter may be installed.



Note: By default the TX1 DMX output is disabled. If you require DMX output from the TX1, you must use the ArcSystem commissioning tool software to add DMX fixtures.

Commissioning a Wireless ArcSystem

Initial programming of a wireless ArcSystem requires a USB commissioning tool (ARCMCT), and existing hardware such as a laptop or desk top computer that is connected to ArcSystem. This programming will be carried out by an ETC certified technician at the time of system commissioning and training.

The following is a list of procedures included in the configuration process:

- patching groups of luminaires to specific DMX channels
- assigning minimum and maximum dimming levels per group
- assigning power fail/recovery options per group



Note: To ensure a smoother transition from an emergency state to a standard run state, ETC recommends setting DMX Loss behavior as "Go to Full" on ArcSystem TX1 Transmitters. In the ArcSystem Configuration Software, this setting is at Edit Wireless Gateway>DMX and is called Fade on loss of DMX.

Maintenance



WARNING: RISK OF DEATH BY ELECTRIC SHOCK! Failure to disconnect all power to the system before installation, maintenance, cleaning, or any other system modification could result in serious injury or death.

AVERTISSEMENT : RISQUE DE MORT PAR DÉCHARGE ÉLECTRIQUE! Négliger de débrancher toutes les sources d'alimentation du système avant l'installation, l'entretien, le nettoyage ou toute autre modification du système peut causer des blessures graves ou la mort.

De-energize main feed to ArcSystem and follow appropriate Lockout/Tagout procedures as mandated by NFPA 70E. It is important to note that electrical equipment such as breaker panels can present an arc flash hazard if improperly serviced. This is due to the high amounts of short-circuit current available on the electrical supply to this equipment. Any work must comply with OSHA Safe Working Practices.



WARNING: RISK OF ELECTRIC SHOCK! Circuits that are installed without an accessible power disconnect device cannot be serviced or operated safely.

AVERTISSEMENT : RISQUE DE DÉCHARGE ÉLECTRIQUE! Il est imprudent d'utiliser ou de réparer les circuits installés sans qu'un dispositif de déconnexion de l'alimentation ne soit accessible.



WARNING: RISK OF ELECTRIC SHOCK! The light sources in this luminaire are not user-replaceable, and must be replaced only by a qualified technician. Contact ETC Customer Support for assistance.

AVERTISSEMENT : RISQUE DE DÉCHARGE ÉLECTRIQUE! Les sources lumineuses de ce projecteur ne sont pas remplaçables par l'utilisateur et doivent être remplacées seulement par un technicien qualifié. Contactez le service client ETC pour obtenir de l'assistance.



WARNING: Disconnect the fixture from power and DMX and allow it to cool before performing any cleaning and maintenance.

AVERTISSEMENT : Débrancher la lampe de son alimentation et du DMX et la laisser refroidir avant d'effectuer un nettoyage ou un entretien.



CAUTION: *Check for excessive dust or debris in the heat-dissipating fins around the entire luminaire enclosure. Clean using compressed air or a soft cloth. Keeping the components of the enclosure clean facilitates efficient cooling and extends LED longevity.*

NEVER spray liquids into the luminaire.

NEVER spray compressed air into a luminaire that is powered-up.

A can of compressed air or oil-free air from an air compressor set at a low setting can be used to blow through the vent holes and remove dust or other debris. Dust buildup can cause overheating and premature shutdown.

All components can be cleaned using compressed, oil-free air as described above or a clean micro-fiber cloth. The use of any liquid cleaning solution is not recommended.

Inspect all mounting hardware for wear and, if necessary, clean using compressed, oil-free air or a soft, lint-free cloth.

Fuses

Some ArcSystem luminaires have a user-serviceable fuse located in the power switch. Consult the table below for your luminaire type. All emergency luminaires, 100–277 V luminaires, and luminaire types that are not listed do not have user-serviceable fuses.

Voltage	Luminaire	Fuse Quantity	Fuse
100–240 V	Pro Two-Cell	1	3.150 A, 250 V, class T 5x20 mm
	Pro Four-Cell Square		
	Pro Four-Cell Linear		
	Pro Four-Cell Round		
	Pro Eight-Cell		

Troubleshooting

Multi-Cell Luminaire LEDs

ArcSystem multi-cell luminaires have DMX LEDs that indicate the status of the processor and DMX communication.

DMX Link LED

- Slow flash (wireless operation): normal operation. DMX broadcast is being received and DMX data is not changing.
- Solid On (wireless operation): active DMX signal is being received
- Solid On (wired operation): DMX is present

DMX Status LED

- Steady blinking: processor is operating normally
- Solid On: system is responding to DMX instruction
- Solid On when no DMX command is being sent: there is a processor fault. Contact ETC Technical Services for assistance.

Emergency Operation and Test

It is important to test ArcSystem emergency systems regularly because they are life safety devices. **NOT SELF-TESTING PER ANSI/NFPA 101 - This equipment is not self-testing in conformance with the Life Safety Code, ANSI/NFPA 101. ANSI/NFPA 101 Life Safety Code requires testing of life safety devices every 30 days.**

To test the emergency functionality of this device, disconnect the sense circuit.



WARNING: RISK OF DEATH BY ELECTRIC SHOCK! Failure to disconnect all power to the system before installation, maintenance, cleaning, or any other system modification could result in serious injury or death.

AVERTISSEMENT : RISQUE DE MORT PAR DÉCHARGE ÉLECTRIQUE!
Négliger de débrancher toutes les sources d'alimentation du système avant l'installation, l'entretien, le nettoyage ou toute autre modification du système peut causer des blessures graves ou la mort.

De-energize main feed to ArcSystem and follow appropriate Lockout/Tagout procedures as mandated by NFPA 70E. It is important to note that electrical equipment such as breaker panels can present an arc flash hazard if improperly serviced. This is due to the high amounts of short-circuit current available on the electrical supply to this equipment. Any work must comply with OSHA Safe Working Practices.



CAUTION: *This equipment has more than one power supply connection point. To reduce the risk of electric shock, disconnect both the branch circuit-breakers or fuses and emergency power supplies before servicing.*

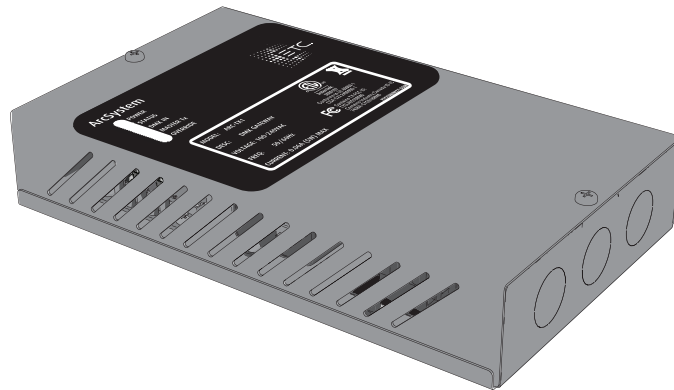
ATTENTION : *Cet équipement possède plusieurs points de connexion d'alimentation. Pour réduire le risque d'électrocution, débranchez les disjoncteurs de dérivation ou les fusibles et les alimentations de secours avant de procéder à l'entretien.*

Test the ArcSystem emergency system as described:

1. Turn off power at the normal circuit breaker.
2. Test the system per ANSI/NFPA 101 Life Safety Code.

Appendix A

TX1 Installation



WARNING: RISK OF DEATH BY ELECTRIC SHOCK! Before you begin pulling and terminating wire to the TX1 Transmitter, make sure the main circuit breaker cabinet or other readily accessible input power disconnect device for the normal power input (and emergency power input when used) is locked out and tagged out.

AVERTISSEMENT : RISQUE DE MORT PAR DÉCHARGE ÉLECTRIQUE! Avant de passer le câblage et de le raccorder à l'émetteur TX1, s'assurer de la coupure électrique du disjoncteur principal ou d'une autre arrivée électrique pour l'alimentation normale (et l'alimentation de secours lorsqu'elle est utilisée); s'assurer aussi que le disjoncteur ou le dispositif de déconnexion est verrouillé et identifié.



WARNING: RISK OF ELECTRIC SHOCK! Circuits that are installed without an accessible power disconnect device cannot be serviced or operated safely.

AVERTISSEMENT : RISQUE DE DÉCHARGE ÉLECTRIQUE! Il est imprudent d'utiliser ou de réparer les circuits installés sans qu'un dispositif de déconnexion de l'alimentation ne soit accessible.



Note: *Read this section completely before beginning your system installation.*

Preparing for Installation



Note: Mounting hardware and installation location must support the TX1 Transmitter, conduit hardware, and all cable required for installation.

Supplies

The TX1 Transmitter includes four #10 mounting screws.

The following supplies are required, but not provided, for TX1 Transmitter installation:

- conduit and conduit fittings
- Phillips screwdriver
- Four each wall anchors, as needed

Electrical and Wiring Specifications

The TX1 Transmitter accepts 100–240 VAC, 50/60 Hz power input. ETC recommends installing all wiring in grounded metal conduit.

Wire and Terminal Specifications

Terminal / Connector	Conduit Entry	Wire Range / Specification	Strip Length	Torque
power input (hot/neutral/ground)	½ in conduit	up to 10 AWG (solid or stranded) (up to 6 mm ²)	7 mm (1/4 in)	0.5 Nm (4 in-lb)
AUX contact inputs (input 1/input 2/ground)	½ in conduit	22–14 AWG (solid or stranded) (0.6–1.6 mm ²)	5 mm (3/16 in)	0.5 Nm (4 in-lb)
DMX in/out terminals	½ in conduit	Belden 9729 (or equivalent)	See Terminate Wiring on the facing page.	

Mounting

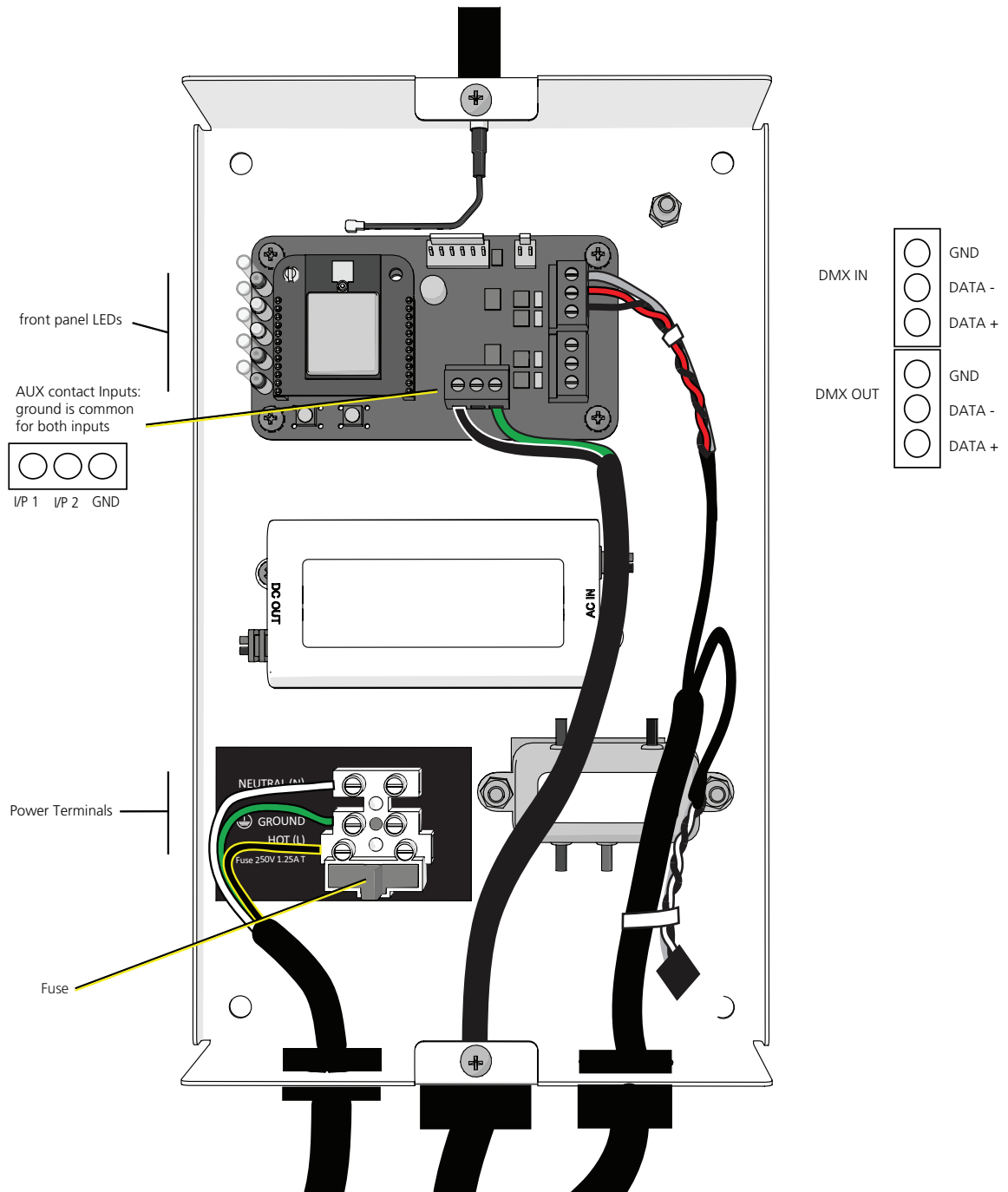
The TX1 Transmitter can be set on a flat horizontal surface, such as a table top, or surface-mounted using the four holes located on the back side of the enclosure.

1. Remove the two screws securing the front of the TX1 to the enclosure.
 - Save these screws for reinstallation later.
 - The cover is tethered to the enclosure. Be careful when handling.
2. Align the TX1 to the installation location and secure it in place using the four #10 screws provided.
3. The TX1 enclosure has three conduit knockouts. As required by local code, remove the knockouts and attach conduit.



Note: Use suitable conduit where required by local or national code.

Terminate Wiring



Power



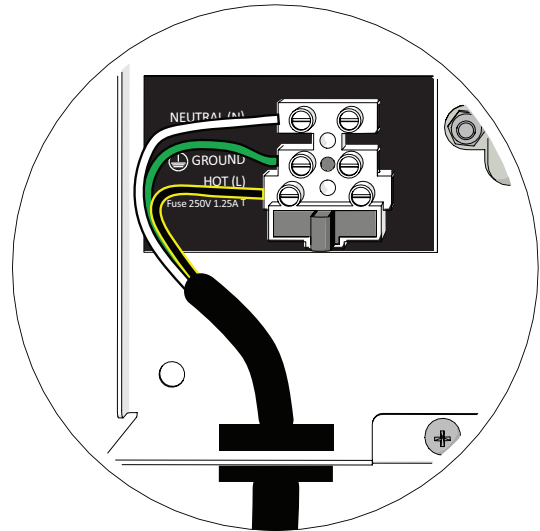
WARNING: RISK OF ELECTRIC SHOCK! Circuits that are installed without an accessible power disconnect device cannot be serviced or operated safely.

AVERTISSEMENT : RISQUE DE DÉCHARGE ÉLECTRIQUE! Il est imprudent d'utiliser ou de réparer les circuits installés sans qu'un dispositif de déconnexion de l'alimentation ne soit accessible.



Note: ETC recommends powering multiple TX1 transmitters from separate branch circuits.

1. Make sure all power is off at the main circuit breaker. ETC recommends powering multiple TX1 transmitters from separate branch circuits.
2. See [Wire and Terminal Specifications on page 46](#) for specification of wire, strip length, and terminal torque ratings. Prepare the wires accordingly.
3. Loosen the three screw terminals for NEUTRAL (N), GROUND (⊕), and LINE (L) connections.
4. Insert the ground wire (typically green) into the GROUND (⊕) terminal and tighten the screw.
5. Insert the neutral wire (typically white) into the NEUTRAL (N) terminal and tighten the screw.
6. Connect the hot wire (typically black) into the HOT (L) terminal and tighten the screw.
7. Tug gently on the wires to ensure they are secure.



Detail of TX1 Transmitter power input

Auxiliary Input

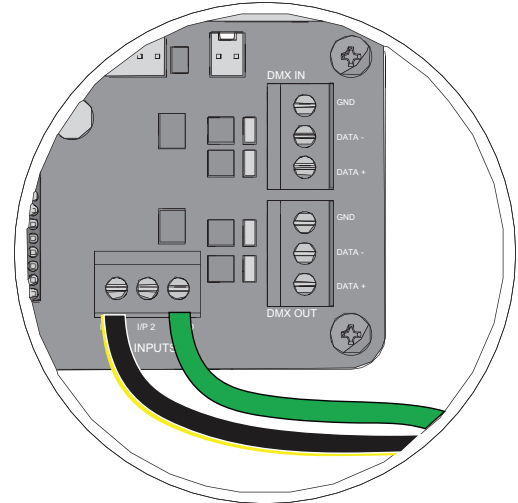
The AUX closed contact input allows the recall of two additional scenes within the TX1. An installation may utilize the two contact inputs to recall two additional scenes within the TX1 Transmitter when not connected to an external control system, such as a DMX control source. These can be used in conjunction with a fire alarm system or momentary remote push buttons.



CAUTION: Do not connect line voltage to the AUX closed contact input terminals.

If applicable to your installation:

1. Make sure all power is off at the remote contact accessory.
2. See [Wire and Terminal Specifications on page 46](#) for specification of wire, strip length, and terminal torque ratings. Prepare the wires accordingly.
3. Terminate ground and auxiliary contact wires to the auxiliary input terminals.
 - a. Install the ground (common) wire (typically green/yellow) to the "GND" terminal and secure the screw onto the wire. If your system requires two auxiliary contact inputs, the ground terminal will accept both wires.
 - b. Install the auxiliary input wire to the "I/P 1" terminal and secure the screw onto the wire.
 - c. As needed, for systems requiring an additional auxiliary contact input, install the auxiliary input wire to the "I/P 2" terminal and secure the screw onto the wire.



Detail of TX1 Transmitter AUX input with input 1 ("I/P 1") and ground ("GND") connected

DMX In and DMX Out

DMX In and DMX Out cables terminate to terminal connections on the TX1 Transmitter board. Wire preparation and installation is the same for both In and Out.

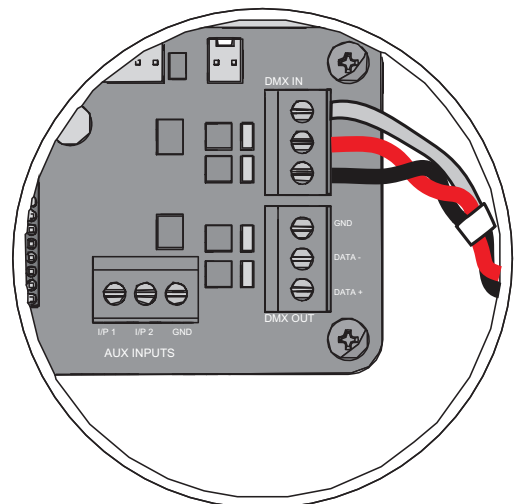
DMX is installed in a daisy-chain topology and includes one pair of wires (data +, data -) plus an ISO ground (common). ETC recommends the use of Belden 9729 (or approved equal) wire. For best DMX performance, twist the wires together as close to the terminals as possible.



Note: Total length of Belden 9729 should not exceed 500 m (1640 ft) between the control source and the TX1 Transmitter.

On board DMX In and Out terminal connections

Pin	Description
1	common/ground (GND)
2	Data -
3	Data +



Detail of TX1 Transmitter with DMX IN connected

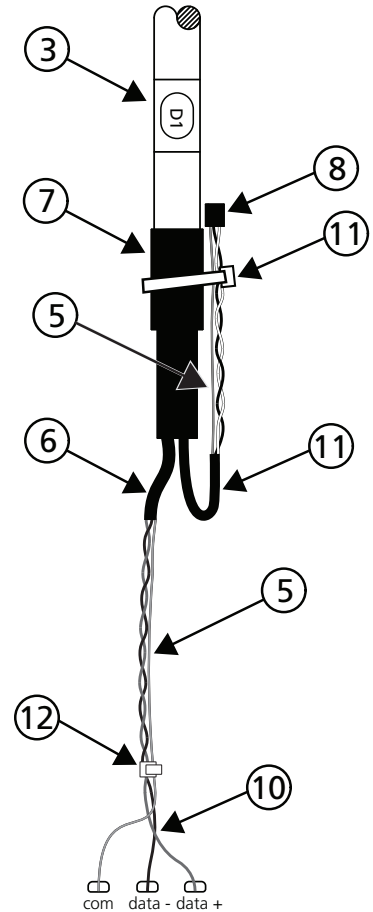
DMX Cable Preparation and Termination

This instruction assumes preparation of Belden 9729 (or equivalent) cable for termination to the three-position screw terminal inside the TX1.



Note: *Not for use with Cat5, Cat5e, or Cat6 cable.*

1. Leave approximately 20 cm (8 in) of wiring to allow slack for future service needs.
2. Strip 18 cm (7 in) off the outer jacket.
3. Label the cable with the data type and run designation. (DMX1, DMX2, etc.)
4. Strip the foil shielding from each wire set to within 6 mm (1/4 in) of the outer jacket.
5. Untwist the shield wire from each pair and apply a piece of 1.6 mm (1/16 in) clear heat shrink to each shield wire.
6. Twist each shield wire back onto its data pair, and then apply a 4 cm (1.5 in) piece of 0.5 cm (3/16 in) heat shrink all the way down each 3-wire set. Make sure to capture the foil shielding at the base.
7. Apply the 5 cm (2 in) piece of the 1 cm (3/8 in) heat shrink, centered on the end of the cable jacket and the bases of all the wires in the cable.
8. Cap the ends of the unused pair of wires with a 2.5 cm (1 in) piece of 0.5 cm (3/16 in) heat shrink centered over the end of the wires.
9. Strip 6 mm (1/4 in) of insulation from all of the wires to be used.
10. Maintain the wire pair twist as close to the screw terminal as possible and terminate the wires.
 - Insert the data - wire (typically black) into the terminal labeled "Data -" and secure.
 - Insert the data + wire (typically red or white) into the terminal labeled "Data +" and secure.
 - Insert the common (shield) wire into the terminal labeled "GND " and secure.
11. Bend back the unused set of wires and secure them to the cable with a wire tie.
12. Secure the terminated wire sets together with a wire tie 5 cm (2 in) from the connector.



Note: *Specific wire colors will vary based on the DMX cable used.*

Final Installation and Power Up

1. Check that all wires are terminated properly and secure in their terminals.
2. Reinstall the cover using the two screws previously removed.
3. Check the front panel LEDs for status indication.

Front Panel LEDs

LED Indicator	Description
POWER	Solid red indicates the unit is powered
STATUS	Pulsing indicates normal operation
DMX IN	Solid when valid DMX is present
MASTER Tx	Solid when the TX1 is the master
OVERRIDE	Solid when Aux is active

Attach Antenna

The TX1 is supplied with a 2 dBi antenna providing 90 degree omni-directional coverage. Install this antenna to the TX1 antenna receptacle.

Luminaires outside the coverage area will be unable to communicate effectively. Due to the nature of the ArcMesh protocol, networked luminaires outside of the transmission range may be able to connect through another in-range luminaire. However, keeping as many luminaires as possible within range of the TX1 broadcast will strengthen system reliability. When possible, it is best to keep the transmitter within the same plane as the luminaires.

Dual Redundancy Operation

TX1 transmitters can be set up with dual redundancy, allowing a backup transmitter to take control if the master transmitter fails.



Note: *Transmitter switch-over may take up to 1 minute to complete depending on the size of the network.*

Dual redundancy requires the use of two TX1 transmitters and two separate and dedicated DMX inputs split using a third-party splitter. It is not possible to daisy-chain DMX through the TX1 transmitters because they have active outputs.



Note: *DMX Out is a regenerated data output signal, and not a passive through. Only the DMX channels that are patched to the 64 ArcSystem channels are available on the DMX Out port.*

When two transmitters are used on the same wireless network ID/radio channel, the system will determine a master transmitter and a backup transmitter. The TX1 with the highest MAC address will become the master. All system preset and configuration data is stored on both transmitters. The master transmitter is indicated by solid red on the LED on the front panel labeled "MASTER Tx". See [Front Panel LEDs above](#).

Setup of dual redundancy is done at the time of system commissioning by an ETC certified technician. For more information on this process, contact ETC Technical Services.

Maintenance



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Fuses

The TX1 Transmitter has one 3.150 A, 250 V, 5x20 mm fuse located on the power input terminal block.

Appendix B

Compliance

For current and complete compliance information, view the product datasheets at etconnect.com/ArcSystem. For complete product documentation, including compliance documentation, visit etconnect.com/products.



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