

# ILLUMINATION CONTROL FIXTURE WHIP

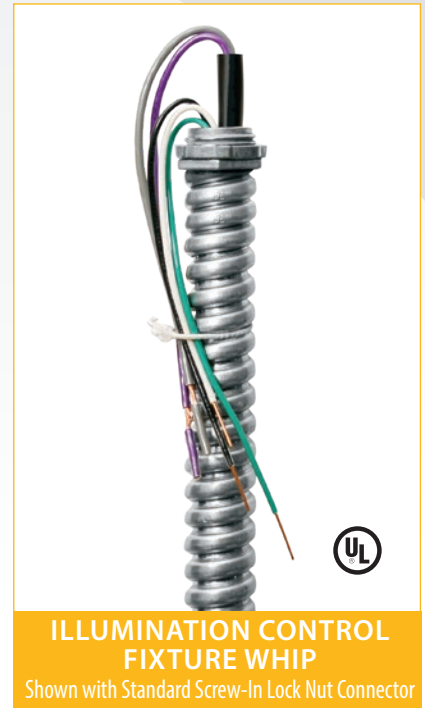
Our Illumination Control Fixture Whip (ICFW) is an integral component for illumination and control of all lighting systems. The ICFW can be used in new or retrofit construction for lighting systems operating at 120/277 VAC, meets all UL and NEC standards for combining power and lighting circuits with Class 2 or Class 3 control circuits within the same fixture whip, and is the cost-effective solution that saves the contractor time and labor when compared to buying and terminating expensive five conductor MC cable or making a homemade solution at the job site.

The ICFW is easily integrated into the architecture of a building using LED luminaires or fluorescent luminaires with dimming ballast and digital controls to:

- Optimize lighting at all times when used with an independent room controller for daylight harvesting as an energy management solution to reduce energy consumption.
- Operate in compliance with “timed” daily personnel and warehouse schedules.
- Control lighting operations used in combination with occupancy sensors for commercial and industrial applications.

## BENEFITS

- UL Listed. File Number E87199.
- Meets the requirements of the 2017 National Electrical Code, Article 300.3(C)(1), Section 725.136(I)(1), 725.139(A) through (D)(1) and California Title 24 Lighting Controls, Articles 130.1(A)(B)(C)(D)(E).
- Meets UL and NEC Articles for combining Power / Lighting Circuits and the Class 2 or Class 3 Control Circuits all within the same Fixture Whip.
- Easy to install and wire. Installation is familiar to electrical contractors and is less prone to installation error.



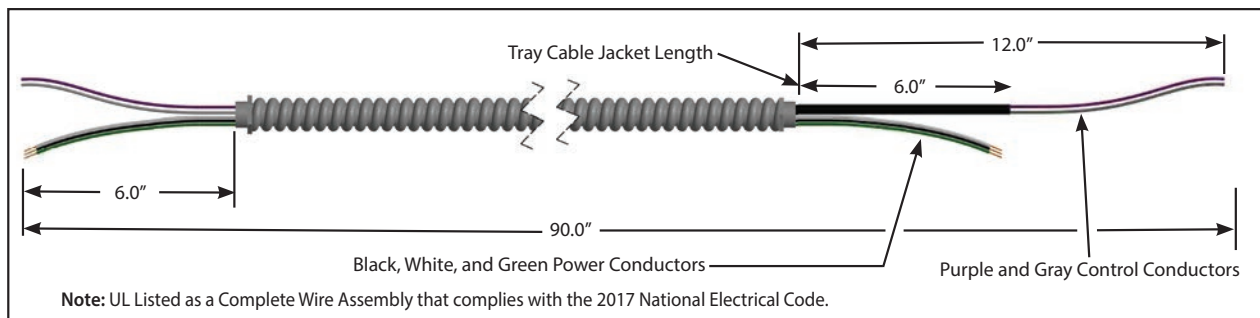
**ILLUMINATION CONTROL FIXTURE WHIP**  
Shown with Standard Screw-In Lock Nut Connector

## How Does It Differ From EPCO’s Standard 3/8” or 1/2” Fixture Whip?

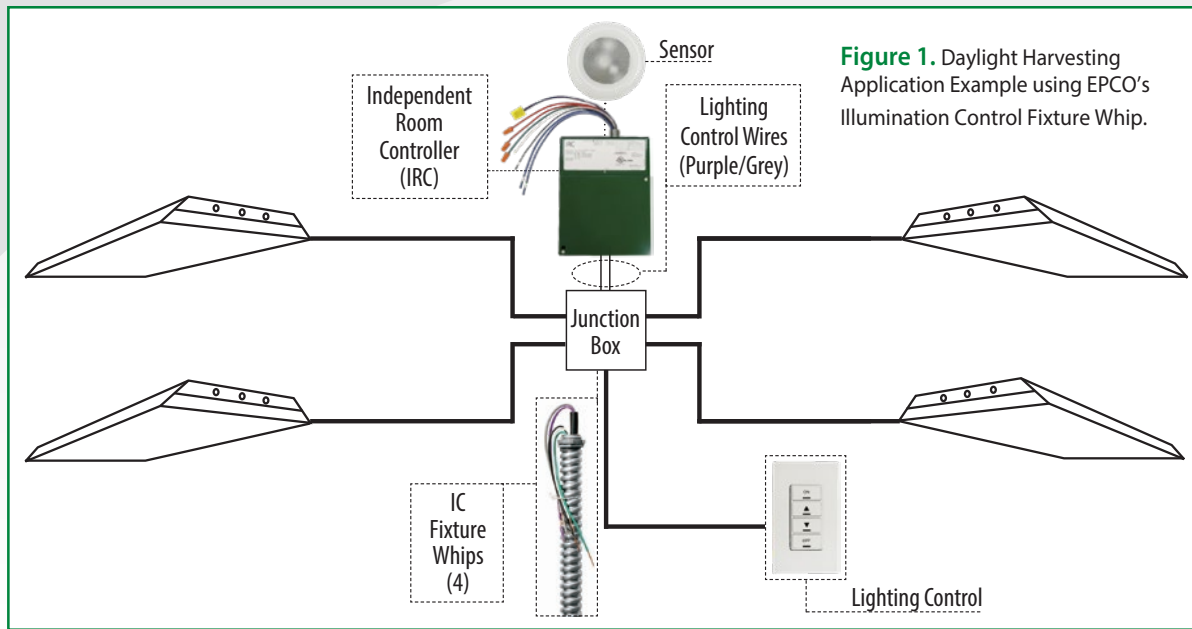
EPCO’s Standard Fixture Whip is intended to exclusively connect the Line Voltage Conductors of an LED Driver or Ballast to the incoming Power Conductors within an Electrical Junction Box (Class 1 Circuit).

## Why is it Necessary to have a Different Fixture Whip Configuration than our Standard Whip when a Luminaire will Utilize Wireless Lighting Controls?

- Wireless Lighting Controls Use Relay Modules that can be attached to the outside of an electrical junction box with a nipple.
- The connection(s) of the low voltage conductors from the dimmable ballast or LED driver are intended to go through the Junction Box, and through the nipple and into the Lighting Control Relay Module to receive controller commands.
- When the Electrical Contractor wants to use a single pre-fabricated Fixture Whip to control a luminaire with control features.



# ILLUMINATION CONTROL FIXTURE WHIP



**Figure 1.** Daylight Harvesting Application Example using EPCO's Illumination Control Fixture Whip.

## 120 VOLT ILLUMINATION CONTROL FIXTURE WHIP PART NUMBERS

Catalog Number	UPC Number	Description	Order Unit	Unit Qty	Unit Pkg	Units/Case	TL Case Qty	Min Order Qty	MM Req	Ship Wt (Lbs)
<b>Stranded Wire Screw-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263-1/2-IC	84010	3-12 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463-1/2-IC	84012	3-14 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464-1/2-IC	84013	4-14 AWG Stranded Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663-1/2-IC	84016	3-16 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664-1/2-IC	84017	4-16 AWG Stranded Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863-1/2-IC	84020	3-18 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864-1/2-IC	84021	4-18 AWG Stranded Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	277
<b>Solid Wire Screw-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263S-1/2-IC	84011	3-12 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463S-1/2-IC	84014	3-14 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464S-1/2-IC	84015	4-14 AWG Solid Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663S-1/2-IC	84018	3-16 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664S-1/2-IC	84019	4-16 AWG Solid Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863S-1/2-IC	84022	3-18 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864S-1/2-IC	84023	4-18 AWG Solid Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	277
<b>Stranded Wire Snap-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263AD-1/2-IC	84024	3-12 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463AD-1/2-IC	84026	3-14 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464AD-1/2-IC	84027	4-14 AWG Stranded Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663AD-1/2-IC	84030	3-16 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664AD-1/2-IC	84031	4-16 AWG Stranded Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863AD-1/2-IC	84034	3-18 AWG Stranded Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864AD-1/2-IC	84035	4-18 AWG Stranded Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	277

### UNITS OF MEASURE KEY

**Order Unit:** The Unit to be ordered; **Unit Qty:** Number of pieces in each Unit; **Unit Pkg:** Unit Packages contained in the case - Packaging types - BG (Bag), BRL (Barrel), BX (Box), BN (Bulk), PKG (Package), EA (Each), RL (Roll), LB (Pound), C (Hundred), M (Thousand); **Units/Case:** Unit packages contained in the Case; **TL Case Qty:** The total number of items in each Master Case; **Min Order Qty:** The smallest Unit that can be ordered; **MM Req:** Must order multiples of the Unit in the stated quantities; **Ship Wt (Lbs):** Total weight of the units per Carton

Specifications subject to change without prior notice.

## 120 VOLT ILLUMINATION CONTROL FIXTURE WHIP PART NUMBERS (CONTINUED)

Catalog Number	UPC Number	Description	Order Unit	Unit Qty	Unit Pkg	Units/Case	TL Case Qty	Min Order Qty	MM Req	Ship Wt (Lbs)
<b>Solid Wire Snap-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263SAD-1/2-IC	84025	3-12 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463SAD-1/2-IC	84028	3-14 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464SAD-1/2-IC	84029	4-14 AWG Solid Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663SAD-1/2-IC	84032	3-16 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664SAD-1/2-IC	84033	4-16 AWG Solid Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863SAD-1/2-IC	84036	3-18 AWG Solid Wire: 6-FT - Black, White, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864SAD-1/2-IC	84037	4-18 AWG Solid Wire: 6-FT - Black, Red, White, Green	EA	1	BRL	100	100	10	Yes	277

**Note:** All Illumination Control Fixture Whips include two (2) 16 AWG Jacketed Control Wires — Purple and Grey.

## 277 VOLT ILLUMINATION CONTROL FIXTURE WHIP PART NUMBERS (CONTINUED)

Catalog Number	UPC Number	Description	Order Unit	Unit Qty	Unit Pkg	Units/Case	TL Case Qty	Min Order Qty	MM Req	Ship Wt (Lbs)
<b>Solid Wire Screw-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263S-1/2-BGG-IC	84040	3-12 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463S-1/2-BGG-IC	84044	3-14 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464S-1/2-BOGG-IC	84048	4-14 AWG Solid Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663S-1/2-BGG-IC	84052	3-16 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664S-1/2-BOGG-IC	84056	4-16 AWG Solid Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863S-1/2-BGG-IC	84060	3-18 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864S-1/2-BOGG-IC	84064	4-18 AWG Solid Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	277
<b>Stranded Wire Snap-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263AD-1/2-BGG-IC	84039	3-12 AWG Stranded Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463AD-1/2-BGG-IC	84043	3-14 AWG Stranded Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464AD-1/2-BOGG-IC	84047	4-14 AWG Stranded Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663AD-1/2-BGG-IC	84051	3-16 AWG Stranded Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664AD-1/2-BOGG-IC	84055	4-16 AWG Stranded Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863AD-1/2-BGG-IC	84059	3-18 AWG Stranded Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864AD-1/2-BOGG-IC	84063	4-18 AWG Stranded Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	277
<b>Solid Wire Snap-In Fixture Whips - 1/2" (.5") Conduit</b>										
EPW1263SAD-1/2-BGG-IC	84041	3-12 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	292
EPW1463SAD-1/2-BGG-IC	84045	3-14 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	282
EPW1464SAD-1/2-BOGG-IC	84049	4-14 AWG Solid Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	282
EPW1663SAD-1/2-BGG-IC	84053	3-16 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	277
EPW1664SAD-1/2-BOGG-IC	84057	4-16 AWG Solid Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	272
EPW1863SAD-1/2-BGG-IC	84061	3-18 AWG Solid Wire: 6-FT - Brown, Grey, Green	EA	1	BRL	100	100	10	Yes	270
EPW1864SAD-1/2-BOGG-IC	84065	4-18 AWG Solid Wire: 6-FT - Brown, Orange, Grey, Green	EA	1	BRL	100	100	10	Yes	277

**Note:** All Illumination Control Fixture Whips include two (2) 16 AWG Jacketed Control Wires — Purple and Grey.

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## Relevant NEC Code Section

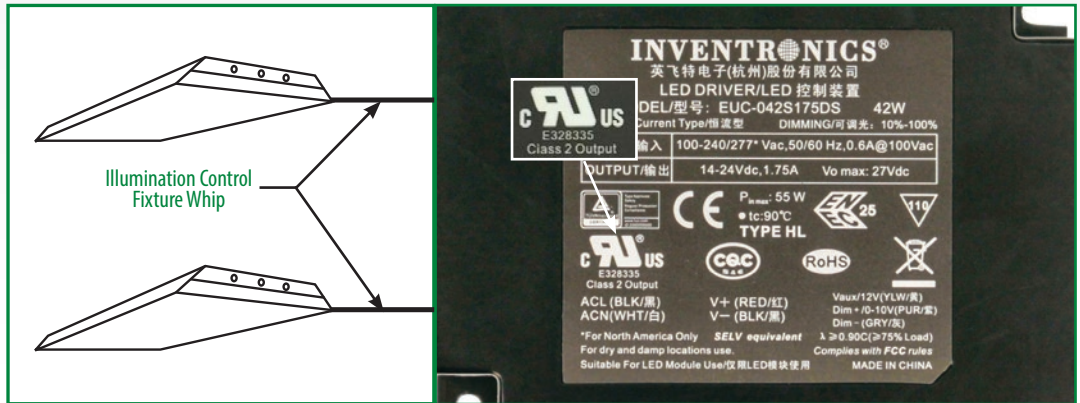
**2017 NEC Code.136:** Separation from Electric Light, Power, Class 1, Non-Powered Limited Alarm Circuit Conductors, and Medium-Power Network - Powered Broadband Communication Cables. If the Luminaires are going to Utilize “Wireless” Electronic Controls, and the Electrical Contractor wants to have a single Fixture Whip to Contain both the Class 1, Class 2, or Class 3 circuits then...

## Relevant NEC Code Section

**(A) General.** “Cables and Conductors of the Class 2 and Class 3 Circuits shall not be placed in any Cable,...Outlet Box, Device Box,...with Conductors of Electric Light, Power, Class 1 Circuits....Unless Permitted by NEC Article 725.136 (B through I)”.

## Relevant NEC Code Section

**(B) Separated by Barriers.** Class 2 and Class 3 Circuits shall be Permitted to be Installed Together with the Conductors of Electric Light, Power, Class 1, Non-Power Limited Fire Alarm, and Medium Power Network Powered Broadband Communication Circuits where they are Separated by a Barrier.



## Relevant NEC Code Section

**(E) Enclosures with Single Opening.** Class 2 and Class 3 Circuits entering compartments, enclosures, device boxes, outlet boxes, or similar fittings shall be permitted to be Installed with Class 1... provided the conductors are separated from other conductors by a continuous and firmly fixed non-conductor, such as flexible tubing or PVC jacketed.

... by using EPCO's ICFW, the Installer complies with NEC Article 725.136 Because the ICFW Isolates and Separates the low voltage conductors (Class 2 or 3) within the tray cable from the power conductors (Class 1) all within the ½" Flexible Metallic Conduit.

## Why is it Necessary to Use the Illumination Control Fixture Whip vs. EPCO's Standard Fixture Whip?

## Relevant NEC Code Section

**NEC 90.5 (A) Mandatory Rules.** Mandatory rules of this NEC reference are those that identify actions that are specifically required or prohibited and are characterized by the use of the terms “shall or shall not”.

- On the Luminaire side, the power conductors are wired to the Black and White conductors from the LED Driver or Dimming Ballast, to the Black and White Conductors within the ICFW. See Figure 1. The “green” conductor within the Fixture Whip may get “Spliced” to the Ballast/Luminaire or simply directly to the luminaire.
- On the control side of the LED Driver or Dimmable Ballast, the Gray and Purple Conductors get spliced to the Gray and Purple Conductors within the PVC Jacketed Tray Cable/Fixture Whip.
- On the Junction Box Side, the Black, White, and Green Conductors get connected to the incoming power conductors within the Junction Box.
- The Gray and Purple conductors within the PVC Jacketed Tray Cable, are passed through the Junction box into the attached Independent Relay Control (IRC) where they are connected.

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