

# CONTROLS GUIDE

FOR LIGHTPLANE+ EMBEDDED CONTROLS



**EMBEDDED CONTROLS MADE EASY**  
ALW-INC.COM



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## INTRO TO EMBEDDED CONTROLS

Lighting controls are continuously evolving and are beginning to transition from distributed load controls (used to control a group of fixtures together) to embedded in-fixture solutions (also known as luminaire-level lighting controls (LLLC)).

This controls supplement provides details for specifying common embedded controls with ALW lighting fixtures. These product SKUs can be configured in ALW's online partner portal to provide you with appropriate pricing to accurately budget your project. Be sure to collaborate with your controls team and ALW's Inside Sales team to spec the appropriate product SKUs and quantities to match the controls layout in the project RCP & schedule. Drawings can then be requested to illustrate fixture mounting, electrical details, circuit lengths, etc.

*Note: ALW partners with a wide range of 3rd party controls manufacturers but does not influence the sale of specific controls brands over others. Our goal is to provide ultimate flexibility for our agents and support them through the specification to build process.*

## HOW TO SPECIFY CONTROLS

### 1) CHOOSE BRAND

Ex: Customer wants to choose an nLight Air system by Acuity. Choose Acuity (**AY**) as the brand

**AY/xx/** (Acuity, integral)

**N** (None)

**AY/xx/** (Acuity nLight)

**AI/xx/** (Avi-on)

**CA/xx/** (Casambi)

**CW/xx/** (Cooper Wavelinx)

**EC/xx/** (Encelium)

**EN/xx/** (Enlighted)

**LU/xx/** (Lutron)

**NX/xx/** (NX Controls, integral)

**WA/xx/** (Wattstopper, integral)

### 2) CHOOSE MODEL

Ex: Acuity's nLight Air models are listed on pg 4. For this example we'll choose **RES7/**

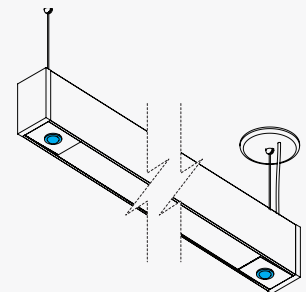
**AY/RES7/** (Acuity, integral)

ALW PRODUCT CODE	MFR PRODUCT CODE
<b>AY/RIO/</b>	RIO ZTS EXTDB ACxx 180D G2
<b>AY/RES7/</b>	RES7 ZTS EXT900 ACxx 180D G2
<b>AY/RES7P/</b>	RES7 PDT ZTS EXT900 ACxx 180D G2
<b>AY/RIOEM/</b>	RIO ZT EM EXTDB ACxx 180D G2

### 3) CHOOSE QUANTITY

Ex: Choose a quantity of **2** for two sensors on a long fixture run

**AY/RES7/2** (Acuity, integral)



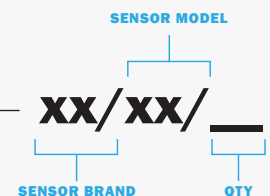
### 4) FINALIZE YOUR FIXTURE CODE

A. Choose compatible lamping (**3500K**)

B. Choose compatible driver (**V00**)

C. Add the final sensor spec (**AY/RES7/2**) to the end of your fixture code from your fixture spec sheet

**Ex: LPX-2-RT9-D-S20-MED/90/3500K-CR/S-V00-SW-UNV-SC-AY/RES7/2**



### 5) SUBMIT YOUR PROJECT

A. Submit your spec and project details to ALW's Inside Sales team.

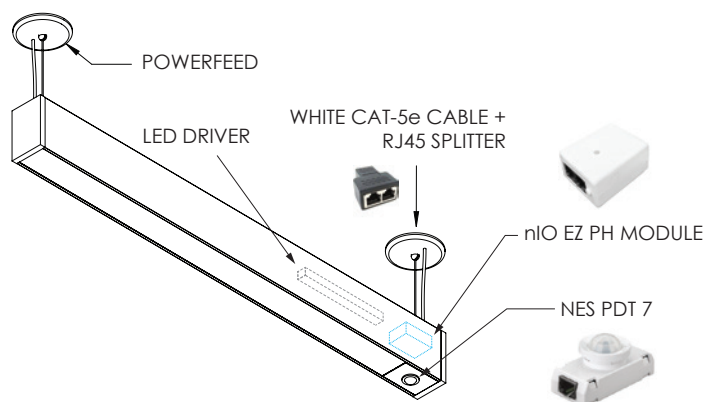
B. Include product types/product codes/quantities, embedded device locations, RCP, and lighting/controls schedules.

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	ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LED OUTPUT	COMPATIBLE DRIVERS*
0-10V	AY/ <b>NIO</b> /__	NIO EZ PH	0-10V nLight Wired integral control, no sensor	N/A	STD	V00 or ELO (120V-277VAC)
	AY/ <b>NES7</b> /__	NIO EZ PH + NES PDT 7	0-10V nLight Wired integral control + dual tech occ sensor	8ft - 20ft	STD	V00 or ELO (120V-277VAC)
	AY/ <b>NES7A</b> /__	NIO EZ PH + NES PDT 7 ADCX	0-10V nLight Wired integral control + dual tech occ/daylight sensor	8ft - 20ft	STD	V00 or ELO (120V-277VAC)
0-10V EM	AY/ <b>NIOEM</b> /__	NIO EZ PH ER	0-10V nLight Wired integral <b>EM control</b> , no sensor	N/A	STD	V00 or ELO (120V-277VAC)
	AY/ <b>NES7EM</b> /__	NIO EZ PH ER + NES PDT 7	0-10V nLight Wired integral <b>EM control</b> + dual tech occ sensor	8ft - 20ft	STD	V00 or ELO (120V-277VAC)
	AY/ <b>NES7AEM</b> /__	NIO EZ PH ER + NES PDT 7 ADCX	0-10V nLight Wired integral <b>EM control</b> + dual tech occ/daylight sensor	8ft - 20ft	STD	V00 or ELO (120V-277VAC)
LEDcode	AY/ <b>TW</b> /__	NIO EZDCL CCT	LEDcode nLight wired EZDCL integral control for TW lamping, no sensor	N/A	Tunable White	DALI (120V-277VAC)
	AY/ <b>TWS</b> /__	NIO EZDCL CCT + VERTEX	LEDcode nLight wired EZDCL integral control for TW lamping + Vertex occ sensor	8ft - 20ft	Tunable White	DALI (120V-277VAC)
LEDcode EM	AY/ <b>TWEM</b> /__	NIO EZDCL CCT ER	LEDcode nLight wired EZDCL integral <b>EM control</b> for TW lamping, no sensor	N/A	Tunable White	DALI (120V-277VAC)
	AY/ <b>TWSEM</b> /__	NIO EZDCL CCT ER + VERTEX	LEDcode nLight wired EZDCL integral <b>EM control</b> for TW lamping + Vertex occ sensor	8ft - 20ft	Tunable White	DALI (120V-277VAC)

\*V00 with STD lamping will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
 ELO with STD lamping will include an EldoLED SoloDrive 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.  
 DALI with TW lamping will include an EldoLED DualDrive DALI/LEDcode2 driver programmed to 0.1% dimming with dim-to-off curve.

## TYPICAL LINEAR FIXTURE WITH nLIGHT WIRED CONTROLS



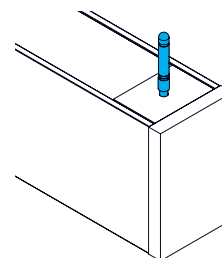
ALW will provide a CAT5e cable and RJ45 splitter for nLight Wired specs

**DON'T SEE AN EMBEDDED CONTROL ON THIS LIST?**  
 Contact ALW with your preferred manufacturer product codes and project details so we can accommodate the embedded controls of your choice.

	ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
0-10V	AY/ <b>RIO</b> /__	RIO ZTS EXTDB ACxx 180D G2	0-10V nLight Air integral control (external dual band antenna)	STD	V00 or ELO (120V-277VAC)
	AY/ <b>RES7</b> /__	RES7 ZTS EXT900 ACxx 180D G2	0-10V nLight Air integral occ/daylight sensor (external antenna)	STD	V00 or ELO (120V-277VAC)
	AY/ <b>RES7P</b> /__	RES7 PDT ZTS EXT900 ACxx 180D G2	0-10V nLight Air integral dual tech occ/daylight sensor (ext antenna)	STD	V00 or ELO (120V-277VAC)
0-10V EM	AY/ <b>RIOEM</b> /__	RIO ZT EM EXTDB ACxx 180D G2	0-10V nLight Air integral <b>EM</b> control (external dual band antenna)	STD	V00 or ELO (120V-277VAC)
	AY/ <b>RES7EM</b> /__	RES7 ZT EM EXT900 ACxx 180D G2	0-10V nLight Air integral <b>EM</b> occ/daylight sensor (external antenna)	STD	V00 or ELO (120V-277VAC)
	AY/ <b>RES7PEM</b> /__	RES7 PDT ZT EM EXT900 ACxx 180D G2	0-10V Air integral <b>EM</b> dual tech occ/daylight sensor (ext antenna)	STD	V00 or ELO (120V-277VAC)
LEDcode	AY/ <b>RIOL</b> /__	RIO EZDL EXTDB ACxx 180D G2	LEDcode nLight Air integral control (external dual band antenna)	STD	DALI (120V-277VAC)
	AY/ <b>RES7L</b> /__	RES7 EXT900 ACxx 180D G2	LEDcode nLight Air integral occ/daylight sensor (external antenna)	STD	DALI (120V-277VAC)
	AY/ <b>RES7PL</b> /__	RES7 PDT EXT900 ACxx 180D G2	LEDcode nLight Air integral dual tech occ/daylight sensor (ext antenna)	STD	DALI (120V-277VAC)
LEDcode EM	AY/ <b>RIOLEM</b> /__	RIO EZDL EM EXTDB ACxx 180D G2	LEDcode nLight Air integral <b>EM</b> control (ext dual band antenna)	STD	DALI (120V-277VAC)
	AY/ <b>RES7LEM</b> /__	RES7 EM EXT900 ACxx 180D G2	LEDcode nLight Air integral <b>EM</b> occ/daylight sensor (external antenna)	STD	DALI (120V-277VAC)
	AY/ <b>RES7PLEM</b> /__	RES7 PDT EM EXT900 ACxx 180D G2	LEDcode Air integral <b>EM</b> dual tech occ/daylight sensor (ext antenna)	STD	DALI (120V-277VAC)

\*V00 (0-10V models) will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
 ELO (0-10V models) will include an EldoLED SoloDrive with Aux 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.  
 DALI (DALI/LEDcode models) will include an EldoLED SoloDrive DALI/LEDcode2 driver programmed to 0.1% dimming with dim-to-off curve.

**nLight Air External Antenna Note:** Recommended by Acuity, ALW specifies an external antenna (EXT900 or EXTDB) for all nLight Air configurations. The antenna is typically mounted on the top end of the fixture body. For recessed fixtures, antenna will be placed on the top end of fixture and recessed into the ceiling cavity. Per request, antenna can be placed on bottom of fixture. As a standard, SMB ceiling mounted fixtures will have the antenna placed on the bottom of the fixture, unless customer requests a top antenna (customer must be willing to drill hole in ceiling to put antenna on top of fixture).



## AVI-ON

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
AN/LVFA/ __	AVI-LVFA-1CH-12-24VDC	Avi-on wireless integral control, no sensor	N/A	STD	V00 or ELO (120V-277VAC)
AY/LVFAP/ __	AVI-LVFA-1CH-12-24VDC + AVI-DC-CS2-PIR	Avi-on wireless integral control + occ/daylight sensor	8ft - 40ft	STD	V00 or ELO (120V-277VAC)

\*V00 will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
ELO will include an EldoLED SoloDrive with Aux 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.

## CASAMBI

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS
CA/TBD/ __	TBD	To be determined. Call ALW with your project requirements so we can specify the appropriate components for your application.	TBD	TBD	TBD

## COOPER WAVELINX

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
CW/WAA/ __	OEM-MSP3IVMVDC1EP + OEM-WAA	Cooper Wavelinx Pro wireless integral control + occ/daylight sensor	8ft - 15ft	STD	V00, V01, or ELO (120V-277VAC)

\*V00 will include an EldoLED Optotronics 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
V01 will include an EldoLED Optotronics 0-10V LED driver programmed to 1% dimming.  
ELO will include an EldoLED SoloDrive 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.

## ENCELIUM

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
EC/CLM/___	CLM DIM	Encelium integral wireless connected lighting module	N/A	STD	V00 or DALI (120V-277VAC)
			N/A	Tunable White	DALI (120V-277VAC)
EC/PIR/___	EN-CLM-PIR-DD-ZB	Encelium integral SensiLUM wireless occ/daylight sensor	8ft - 20ft	STD	V00 or DALI (120V-277VAC)
			8ft - 20ft	Tunable White	DALI (120V-277VAC)

\*V00 with SW lamping will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
 DALI with SW lamping will include an EldoLED DEXAL (Self-powered DALI link driver) programmed to 1% dimming with dim-to-off curve.  
 DALI with TW lamping will include an EldoLED DualDrive DALI/LEDcode2 driver programmed to 0.1% dimming with dim-to-off curve.

## ENLIGHTED



**NOTE:** As of April 2025, Enlighted has ceased business operations. These control solutions will not be available for specification unless requested by a lighting agent who still maintains stock of part numbers below. ALW cannot purchase these components anymore.

	ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
Integral	EN/IL/___	CU-4E-FMH + SU-5E-IL	0-10V control module + Enlighted One occ/daylight sensor	STD	V00, V01, or ELO (120V-277VAC)
	EN/CL/___	CU-4E-FMH + SU-5E-CL	0-10V control module + Enlighted Connected Lighting occ/daylight sensor	STD	V00, V01, or ELO (120V-277VAC)
	EN/IOT/___	CU-4E-FMH + SU-5E-IOT	0-10V control module + Enlighted IoT occ/daylight sensor	STD	V00, V01, or ELO (120V-277VAC)
	EN/ILTW/___	KIT-SU-5E-D-IL	Enlighted One wireless integral 2-wire occ/daylight sensor for tunable white	Tunable White	DALI (120V-277VAC)
	EN/CLTW/___	KIT-SU-5E-D-CL	Enlighted wireless integral Connected Lighting 2-wire occ/daylight sensor for TW	Tunable White	DALI (120V-277VAC)
	EN/IOTTW/___	KIT-SU-5E-D-IOT	Enlighted wireless integral IoT 2-wire occ/daylight sensor for tunable white	Tunable White	DALI (120V-277VAC)
Remote / High Bay	EN/HIL/___	CU-4E-FMH + SU-5S-H-IL	0-10V control module + Enlighted One high bay surface mount sensor	STD	V00, V01, or ELO (120V-277VAC)
	EN/HCL/___	CU-4E-FMH + SU-5S-H-CL	0-10V control module + Enlighted Connected Lighting high bay surface mount sensor	STD	V00, V01, or ELO (120V-277VAC)
	EN/HIOT/___	CU-4E-FMH + SU-5S-H-IOT	0-10V control module + Enlighted IoT high bay surface mount sensor	STD	V00, V01, or ELO (120V-277VAC)

\*V00 with STD lamping will include an EldoLED Optotronics 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
 V01 with STD lamping will include an EldoLED Optotronics 0-10V LED driver programmed to 1% dimming.  
 ELO with STD lamping will include an EldoLED SoloDrive 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.  
 DALI with TW lamping will include a Signify Xitanium SR Flextone LED driver programmed to 1% dimming with dim-to-off curve.

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# LUTRON ATHENA

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
LU/ <b>AWN</b> R/_	A-WN-D01-RF-xx	Lutron Athena integral wireless RF control	N/A	STD	V00 or ELO (120V-277VAC)
			N/A	Tunable White	DALI (120V-277VAC)
LU/ <b>AWN</b> S/_	A-WN-D01-OCC-xx	Lutron Athena integral wireless occ/daylight sensor	8ft - 12ft	STD	V00 or ELO (120V-277VAC)
			8ft - 12ft	Tunable White	DALI (120V-277VAC)

\*V00 will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.  
 ELO will include an EldoLED SoloDrive with Aux 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.  
 DALI with TW lamping will include an EldoLED Optotronics TW Dali LED driver programmed to 1% dimming with dim-to-off curve  
 (Model # OTi50W/120-277/1A4/2CH TW L or similar compatible model).

# LUTRON VIVE



ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
LU/ <b>V</b> R <b>F</b> /_	DFCSJ-OEM-RF	Lutron Vive integral RF wireless fixture control	N/A	STD	DALI (120V-277VAC)
LU/ <b>V</b> D <b>O</b> /_	DFCSJ-OEM-OCC	Lutron Vive integral RF wireless fixture control + occ/daylight sensor	8ft - 12ft	STD	DALI (120V-277VAC)

\*DALI will include a EldoLED DEXAL (Self-powered DALI link driver) programmed to 1% dimming with dim-to-off curve.

## NX CONTROLS - WIRED

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
<b>NX/NXE/</b> __	NXFM-LV	NX wired integral fixture module, no sensor	STD	STD	V00 or ELO (120V-277VAC)
<b>NX/NXERM/</b> __	NXFM-LV + NXSMP2-LMI	NX wired integral fixture module + occ/daylight sensor	8ft - 12ft	STD	V00 or ELO (120V-277VAC)

\*V00 will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.

ELO will include an EldoLED SoloDrive with Aux 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.

## NX CONTROLS - WIRELESS

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
<b>NX/NXW/</b> __	NXFM-LV + NXRM2-H	NX wireless integral fixture module + bluetooth radio module, no sensor	N/A	STD	V00 or ELO (120V-277VAC)
<b>NX/NXWRM/</b> __	NXFM-LV + NXSMP2-LMI	NX wireless integral fixture module + bluetooth occ/daylight sensor	8ft - 12ft	STD	V00 or ELO (120V-277VAC)

\*V00 will include an EldoLED Optotronics with Aux 0-10V LED driver programmed to 1% dimming with dim-to-off curve.

ELO will include an EldoLED SoloDrive with Aux 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.

## WATTSTOPPER

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
<b>WA/LMFS/</b> __	LMFI-111 + LMFS-601	Wattstopper wireless fixture control + occ/daylight sensor	8ft - 12ft	STD	V00, V01, or ELO (120V-277VAC)

\*V00 will include an EldoLED Optotronics 0-10V LED driver programmed to 1% dimming with dim-to-off curve.

V01 will include an EldoLED Optotronics 0-10V LED driver programmed to 1% dimming.

ELO will include an EldoLED SoloDrive 0-10V LED driver programmed to 0.1% dimming with dim-to-off curve.



# FACTORY CONTROLS

Factory controls are non-networked analog sensors. They have basic photocell/occupancy functionality that can be adjusted in the field.

ALW PRODUCT CODE	MFR PRODUCT CODE	DESCRIPTION	SENSOR HEIGHT	COMPATIBLE LAMPING	COMPATIBLE DRIVERS*
OS/PH/INT/___	MSD 7 ADC WH	Acuity 0-10VDC Integral occ/daylight sensor (Acuity Part: MSD 7 ADC WH) Automated Dimming Functionality Only. Manual Dimming not available. Customer to set sensor functionality in the field. Lowest dim level depends on driver.	8ft - 20ft	STD	V00, V01, or ELO (120V-347VAC)
OS/PH/HV/___	WSPDSMUNV	Hubbell WASP High Voltage 0-10V remote surface mount occ/daylight sensor. 120/277/347VAC input (Hubbell Part: WSPDSMUNV)  Automated Dimming Functionality: Connect fixture 0/10V wires to sensor in the field. Adjust occ/photocell settings as desired. Lowest dim level depends on driver.  On/Off or Manual Dimming Functionality: Turn photocell functionality OFF. Cap off 0/10V wires on sensor. Connect fixture 0/10V wires to wall dimmer in the field.	8ft - 40ft	STD TW (on/off only) RGB(W) (on/off only)	V00, V01, ELO, or DMX (120V-347VAC)

# INTEGRAL/REMOTE CONTROLS LOCATION TABLE\*

## ALW CONTROLS PRODUCT CODE

		ALW CONTROLS PRODUCT CODE																					
		AY/NIO/_	AY/NES7/_	AY/NES7A/_	AY/NIOEM/_	AY/NES7EM/_	AY/NES7AEM/_	AY/TW/_	AY/TWS/_	AY/TWEM/_	AY/TWSEM/_	AY/RIO/_	AY/RES7/_	AY/RES7P/_	AY/RIOEM/_	AY/RES7EM/_	AY/RES7PEM/_	AY/RIOL/_	AY/RES7L/_	AY/RES7PL/_	AY/RIOLEM/_	AY/RES7LEM/_	AY/RES7PLEM/_
FIXTURE FAMILY	LPX1	▲	N	N	▲	N	N	▲	N	▲	N	▲	N	N	▲	N	N	▲	N	N	▲	N	N
	LPX1R	▲	N	N	▲	N	N	▲	N	▲	N	▲	N	N	▲	N	N	▲	N	N	▲	N	N
	LPX1P	▲	N	N	▲	N	N	▲	N	▲	N	▲	N	N	▲	N	N	▲	N	N	▲	N	N
	LPX2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX2R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX2P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX2P (GN)**	●	N	N	●	N	N	●	N	●	N	●	N	N	●	N	N	●	N	N	●	N	N
	LPX3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX3R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX3P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX3P (GN)**	●	N	N	●	N	N	●	N	●	N	●	N	N	●	N	N	●	N	N	●	N	N
	LPX4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX4R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX4P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	LPX4P (GN)**	●	N	N	●	N	N	●	N	●	N	●	N	N	●	N	N	●	N	N	●	N	N

\*Lightplane+ fixtures are listed above with compatible controls. ALW can also provide embedded controls for other linear families, cylinders, etc. Contact ALW with your project details and we can work with you on your embedded controls specs.

\*\*GN Indicates fixture code with a 3" regressed lens.

● = **Integral** Embedded control fits in fixture body. If you choose an embedded control, lighting fixture will be built with integral drivers and integral embedded controls.

▲ = **Remote** Embedded control does not fit in fixture body. If you choose an embedded control, lighting fixture will be built with remote drivers and embedded control will be mounted to remote enclosure.

N = **Not Compatible** Embedded control is not compatible with lighting fixture because 1) it does not fit in fixture body, 2) Specified fixture has a 3" regressed lens, creating a blockage in sensor visibility or 3) Other reasons. It is best to specify a control node and pair with a ceiling mount sensor (provided by agent or distributor). Another option is to remove the embedded controls altogether and instead specify a room load controller paired with a ceiling mount sensor (both provided by agent or distributor).

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# INTEGRAL/REMOTE CONTROLS LOCATION TABLE CONT.\*

## ALW CONTROLS PRODUCT CODE CONTINUED

FIXTURE FAMILY		AN/LVFA/—	AN/LVFAP/—	CA/TBD/—	CW/WAA/—	EC/CLM/—	EC/PIR/—	LU/AWNR/—	LU/AWNS/—	LU/VRF/—	LU/VDO/—	NX/NXE/—	NX/NXERM/—	NX/NXW/—	NX/NXWRM/—	WA/LMFS/—	OS/PH/INT/—	OS/PH/HV/—
	LPX1	▲	N	●	N	▲	N	●	N	▲	N	▲	N	▲	N	N	N	▲
	LPX1R	▲	N	●	N	▲	N	●	N	▲	N	▲	N	▲	N	N	N	▲
	LPX1P	▲	N	●	N	▲	N	●	N	▲	N	▲	N	▲	N	N	N	▲
	LPX2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX2R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX2P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX2P (GN)**	●	N	●	N	●	N	●	N	●	N	●	N	●	N	N	N	▲
	LPX3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX3R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX3P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX3P (GN)**	●	N	●	N	●	N	●	N	●	N	●	N	●	N	N	N	▲
	LPX4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX4R	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX4P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	▲
	LPX4P (GN)**	●	N	●	N	●	N	●	N	●	N	●	N	●	N	N	N	▲

\*Lightplane+ fixtures are listed above with compatible controls. ALW can also provide embedded controls for other linear families, cylinders, etc. Contact ALW with your project details and we can work with you on your embedded controls specs.

\*\*GN Indicates fixture code with a 3" regressed lens.

● = **Integral** Embedded control fits in fixture body. If you choose an embedded control, lighting fixture will be built with integral drivers and integral embedded controls.

▲ = **Remote** Embedded control does not fit in fixture body. If you choose an embedded control, lighting fixture will be built with remote drivers and embedded control will be mounted to remote enclosure.

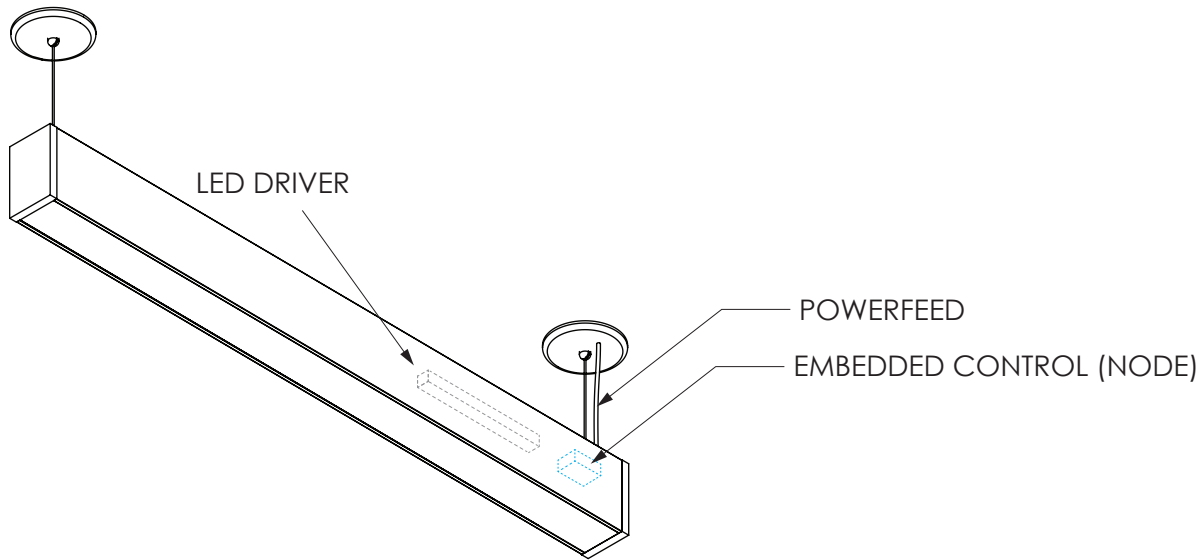
N = **Not Compatible** Embedded control is not compatible with lighting fixture because 1) it does not fit in fixture body, 2) Specified fixture has a 3" regressed lens, creating a blockage in sensor visibility or 3) Other reasons. It is best to specify a control node and pair with a ceiling mount sensor (provided by agent or distributor). Another option is to remove the embedded controls altogether and instead specify a room load controller paired with a ceiling mount sensor (both provided by agent or distributor).

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# EMBEDDED CONTROLS DIAGRAMS

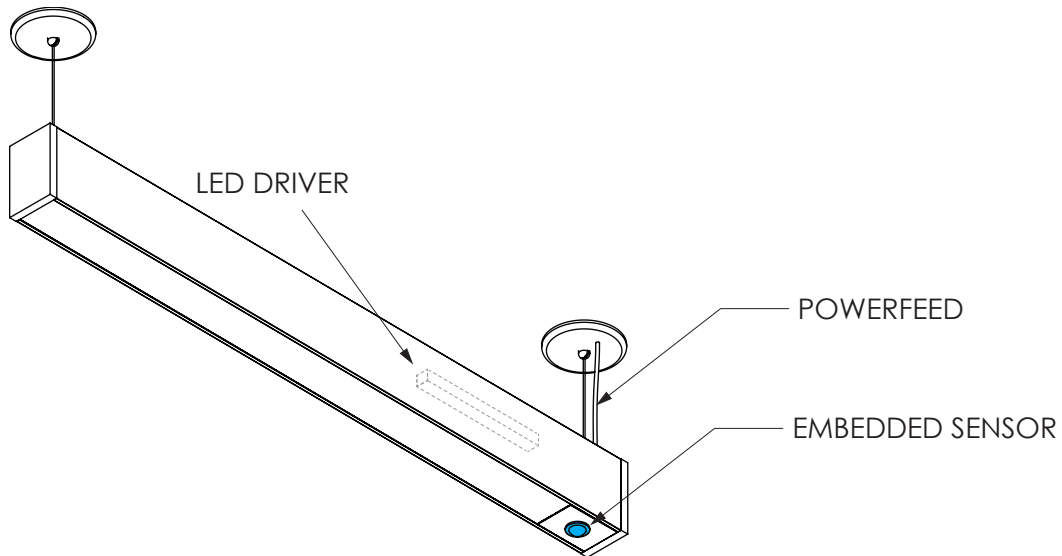
## TYPICAL EMBEDDED CONTROL (NODE) DIAGRAM WITH INTEGRAL DRIVER

*Embedded control (node) is mounted to indirect side of fixture or inside fixture cavity.*



## TYPICAL EMBEDDED SENSOR DIAGRAM WITH INTEGRAL DRIVER

*Embedded sensor is mounted to plate on lens side of fixture.*

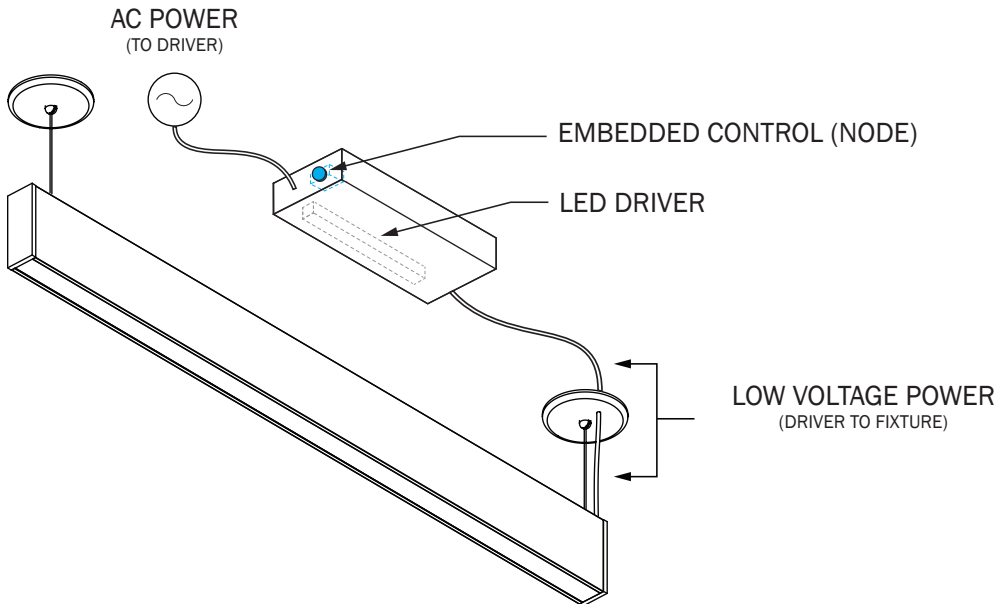




# EMBEDDED CONTROLS DIAGRAMS CONT.

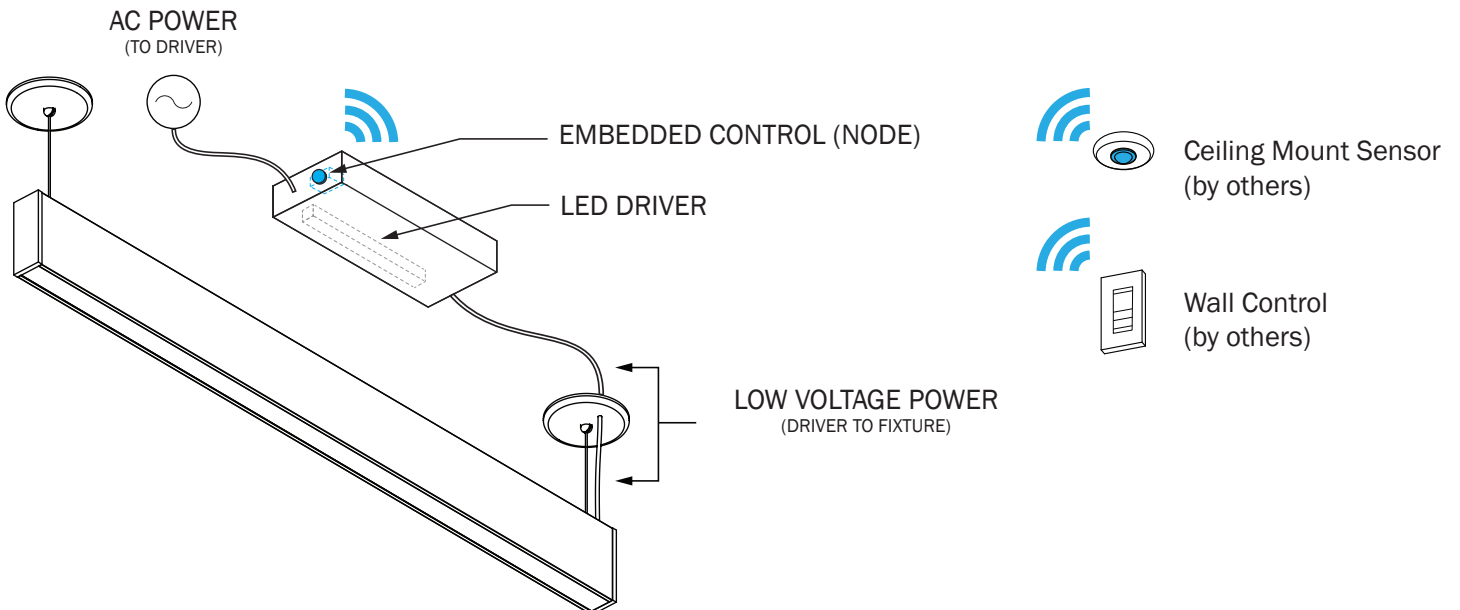
## TYPICAL EMBEDDED CONTROL (NODE) DIAGRAM WITH REMOTE DRIVER

Embedded control is mounted to knockout of LED driver enclosure or is mounted inside enclosure.



### WHAT IF I NEED AN EMBEDDED OCCUPANCY SENSOR WITH A REMOTE DRIVER CONFIGURATION?

Some ALW fixtures are too small to fit an embedded sensor in the fixture body. If an embedded sensor is required for a smaller fixture, first specify an embedded control node, which will be mounted in the remote LED driver enclosure (provided by ALW). Next, it's the agent's responsibility specify a ceiling mount sensor (provided by agent or distributor), which will be paired (wired or wireless) with the control node.



# FAQ

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## **Will ALW recommend a controls system for my project?**

While ALW will provide guidance for integrating controls on a project, it's the agent's responsibility to specify the appropriate controls brand listed on the project schedule and clearly specify the exact part number, quantity, and mounting location for each fixture type. There may be cases where various part numbers are embedded in the same fixture type, such as normal circuit and emergency circuit controls. Just let us know exactly what you need and we'll make it happen.

## **I know the controls brand but don't have full information yet to give you exact part numbers and quantities. How to I price my project?**

Write in TBD (To Be Determined) in your fixture code (Ex. Lutron Athena will look like this: LU/TBD/TBD) For the time being, ALW will price you at the highest price point that manufacturer offers and then adjust as we receive more details on the project.

## **Why are so many brands and part numbers listed in this Controls Guide?**

Each ALW agency/partner reps different controls manufacturers. We've listed the most common embedded solutions we see specified. If you have other controls manufacturers or part numbers you'd like to see on this list contact your ALW Regional Sales Manager.

## **Can I specify an exact LED driver to be paired with the controls I'm specifying?**

Yes, as long as the controls manufacturer has approved the LED driver compatibility. Tell us the driver part number you need and we can review the setup for you.

## **I'm specifying direct+indirect lighting for my fixture. How will the controls be wired?**

For newer ALW product families, there is an option to spec Single Circuit Control (1C) where direct/indirect circuits are combined in the fixture body, or Independent Circuit Control (2C) where D/I circuits are separated. Choosing 1C will have one embedded control operate both D/I circuits. Choosing 2C will have two embedded controls (one to operate each circuit).

Legacy fixtures combine the direct+indirect lighting circuits so a single embedded control operates both circuits simultaneously. This saves you cost as independent control doubles the embedded components. If you want independent control of each circuit tell us your project details and we can build the fixture as needed.

## **Does ALW recommend a certain quantity of occupancy/photocell sensors for a long linear fixture run?**

Most occ/photocell sensors have an 8-10ft diameter sensing web so for an analog device such as a standalone control, an occupancy sensor would typically be mounted every 8ft-10ft in worst-case scenarios. However, new sophisticated control systems operate within a mesh network, allowing the commissioner to pair multiple devices together so when one device detects occupancy the other paired devices respond. Send us the controls layout and mounting locations for the project and we can adjust the sensor quantities as needed.

## **I need a UL924 device wired with my control emergency circuit. How do I specify this?**

Tell us the UL 924 device part number you need and provide us a wiring diagram from the electrical engineer if the fixture is to be wired differently than illustrated in the UL 924 device spec sheet.

## **Will ALW source/install the controls components or is it the agency's responsibility?**

As a standard, ALW will source and install the specified components at our factory. However, if the agent prefers to buy the components and ship directly to ALW we can accommodate this. We'll typically charge a small fee for each embedded control, which includes the additional mounting plates, wiring, etc., to install the device. We will send you a Furnished By Others (FBO) form for you to fill out to include a hard-copy with the components when they are shipped to our factory. We'll need you to provide us with tracking information so we can plan the project ESD accordingly.

## **Do embedded controls fall under ALW's Quickship program?**

No. Most controls manufacturers require a completed project form to be included with each project when placing a purchase order for components and ALW cannot stock most of these components. It's important to place your purchase order with ALW with enough time to receive your completed fixtures on time. Typical lead times for most embedded controls are 2-6 weeks.

## **What are Standalone Controls?**

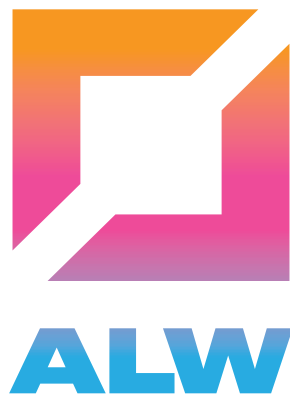
These are analog photocell/occupancy sensors that don't operate with a networked control system and allow the user to achieve common occupancy and photocell functionality.

## **Are your fixtures compatible with remote sensors and load controllers (aka: power packs, zone controllers, etc.)**

Yes. If embedded controls or luminaire level lighting controls (LLLC) aren't required for your project you can also source a load controller from the manufacturer of your choice. Load controllers can be purchased at your local distributor. Typically, these load controllers are offered in loads  $\geq 10A$  and are intended to group multiple fixtures in a set control zone. In most cases, these load controllers are compatible with any 0-10V driver ALW offers. Some load controllers may be designed for use with DALI drivers, Lutron Ecosystem drivers, or other driver types. Simply refer to the load controller spec sheet and specify the appropriate LED driver of your choice on ALW's fixture spec sheets. You do not need to choose an embedded controls spec if you're planning to install remote load controllers. If you have questions on compatibility contact your RSM or Inside Sales.

## **For each brand, sensors and control module part numbers are included in the description. Will ALW supply required connecting cables, etc.?**

Yes. Manufacturer sensors, nodes, and control module part numbers are listed to provide clarification of what major components you will receive with your lighting fixtures. Applicable connecting cables, wiring harness, etc. will also be provided for a fully functional embedded controls lighting fixture.



For detailed product information, spec sheets, and photometrics please visit our website.  
[www.alw-inc.com](http://www.alw-inc.com)

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