

A modern office interior featuring a glass-walled conference room in the foreground with a white table and ergonomic chairs. In the background, there is an open-plan workspace with desks, computers, and office chairs. The ceiling is equipped with recessed lighting fixtures. The overall atmosphere is bright and professional.

**PHILIPS**  
dynalite

DDC116-UL

Application Guide

# Single Zone Controller Application Guide

# NEW! Single Zone Controller

The **Philips Dynalite DDC116 load controller** provides intelligent networked control of 0-10V and DALI broadcast lighting circuits, delivering the flexibility to easily scale your projects from room-based controls to complete building-wide networked controls.

This document provides some reference design examples of using the DDC116 controller and associated devices in different spaces. With these reference examples, you can quickly understand and perform typical controls designs and comply with different building and energy codes.

Each reference design example includes a standard sequence of operation and details on various control strategies supported in that design.

**Note:** The BOM table includes the standard part numbers for each device. If you are designing a project for standalone configuration with room-based controls behavior and no networking of rooms is required, then simply add 'SSA' suffix at the end of those respective part numbers. The 'SSA' suffix depicts that your design is based on products that offer pre-programmed software behaviors for standalone applications.

DDC116



PABPA-SSA



DUS804CS-UP-SSA-O or  
DUS804CS-UP-SSA-V



and/or

DACM-SSA



DUS360CS-DA-SSA



## Dedicated Standalone Devices

**DDC116** – Single zone 0-10v/Relay Controller

**PABPA-SSA** – 7 Different engravings with 15 configurations

**DACM-SSA** – Configurable Antumbra Comms Module

**DUS804CS-UP-SSA-O or DUS804CS-UP-SSA-V** –

Preconfigured Ultrasonic Sensor

- and/or -

**DUS360CS-DA-SSA** – Configurable PIR/Daylight sensor

## System Behavior

All devices that are linked together though DyNet wiring will behave as a control area and deliver a unified system behavior.

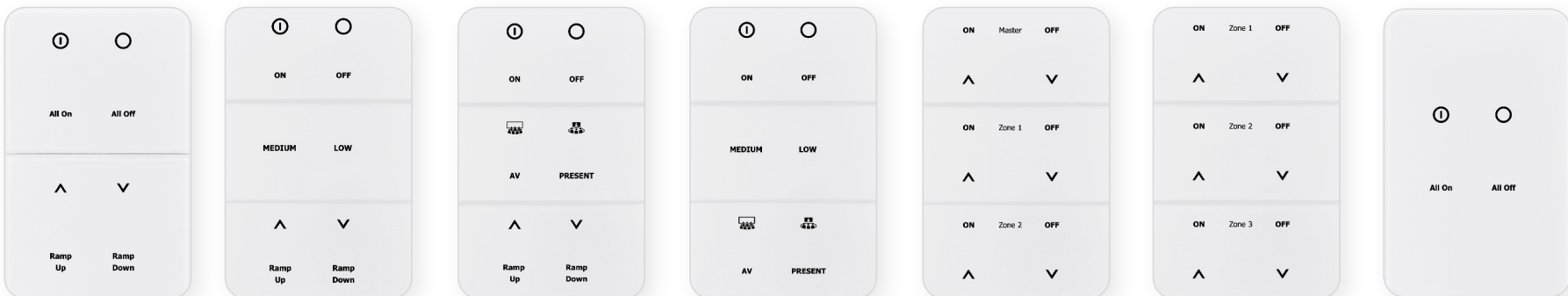
## Sensor

- Sensor configurable between occupancy (default) or vacancy mode
- Configurable timeouts of 5, 10, 15, and 20min (default)
  - 1 min grace period on all timeouts
  - 20min witness mode to test functionality
- Built-in daylight sensing
  - Flexibility to activate primary and secondary daylight zones

## Switches

- Recall preset lighting scenes
- Ramping disables daylight harvesting
- Ramping buttons only affect zones that are lit or “on”
- Fully customizable configuration via [System Builder](#) for more demanding projects

12NC	Part Number	Description
913703376709	DDC116-UL	Philips Dynalite Single Zone Controller
913703389909	DUS360-DA-SSA	Preprogrammed DUS360CR-DA for Single System Architecture
913703662809	DUS804CS-UP-SSA-O	Preprogrammed DUS804CS-UP Occupancy for Single System Architecture
913703662909	DUS804CS-UP-SSA-V	Preprogrammed DUS804CS-UP Vacancy for Single System Architecture
913703668809	DACM-SSA	Preprogrammed DACM for Single System Architecture
912401590702	AL70-NW-G2-AR-4-8-FAWS-TLRD3-BZ	70W, 70CRI, 4000K, Type 4, 120-277V, Selectable 50-57-65-72W, Bronze Finish
912401590701	AL150-NW-G2-AR-3-8-FAWS-TLRD3-BZ	150W, 70CRI, 4000K, Type 3, 120-277V, Selectable 95-115-130-145W, Bronze Finish
912401590709	AL150-NW-G2-AR-4-8-FAWS-IMRI-TLRD3-BZ	150W, 70CRI, 4000K, Type 4, 120-277V, Selectable 95-115-130-145W, Bi-level Motion Response, Bronze Finish
912401590699	AL70-NW-G2-AR-3-8-FAWS-TLRD3-BZ	70W, 70CRI, 4000K, Type 3, 120-277V, Selectable 50-57-65-72W, Bronze Finish
912401590708	AL70-NW-G2-AR-4-8-FAWS-IMRI-TLRD3-BZ	70W, 70CRI, 4000K, Type 4, 120-277V, Selectable 50-57-65-72W, Bi-level Motion Response, Bronze Finish
912401590710	AL70-NW-G2-AR-5-8-FAWS-IMRI-TLRD3-BZ	70W, 70CRI, 4000K, Type 5, 120-277V, Selectable 50-57-65-72W, Bi-level Motion Response, Bronze Finish
912401590706	AL70-NW-G2-AR-3-8-FAWS-IMRI-TLRD3-BZ	70W, 70CRI, 4000K, Type 3, 120-277V, Selectable 50-57-65-72W, Bi-level Motion Response, Bronze Finish
912401590704	AL70-NW-G2-AR-5-8-FAWS-TLRD3-BZ	70W, 70CRI, 4000K, Type 5, 120-277V, Selectable 50-57-65-72W, Bronze Finish
912401590707	AL150-NW-G2-AR-3-8-FAWS-IMRI-TLRD3-BZ	150W, 70CRI, 4000K, Type 3, 120-277V, Selectable 95-115-130-145W, Bi-level Motion Response, Bronze Finish
912401590711	AL150-NW-G2-AR-5-8-FAWS-IMRI-TLRD3-BZ	150W, 70CRI, 4000K, Type 5, 120-277V, Selectable 95-115-130-145W, Bi-level Motion Response, Bronze Finish
912401590703	AL150-NW-G2-AR-4-8-FAWS-TLRD3-BZ	150W, 70CRI, 4000K, Type 4, 120-277V, Selectable 95-115-130-145W, Bronze Finish
912401590705	AL150-NW-G2-AR-5-8-FAWS-TLRD3-BZ	150W, 70CRI, 4000K, Type 5, 120-277V, Selectable 95-115-130-145W, Bronze Finish



# Control Strategies

## Occupancy sensing

Detect the presence of occupancy to automatically turn off luminaires when an area is vacated.

## Vacancy sensing

Configure lighting groups for manual on and automatic off behaviors.

## Daylight harvesting

Sensors monitor available daylight and adjust luminaires to target foot-candle levels.

## Lighting scenes

From local user interface stations, recall different lighting scenes.

## Scheduling

Receive centralized scheduling network messages for lighting automation.

## Receptacle control

With support for 20 Amp relay, easily control plug loads and receptacle outlets.

## UL924 compliance

Use a dry contact input to directly trigger emergency luminaire response.

## Networking

Connect multiple spaces together or integrate with a BMS system over BACnet. Use head-end software to centrally monitor and manage spaces.

## Lighting

Each lighting group is individually dimmable.

## Manual override

From a user interface station, lighting can be turned on to a pre-selected scene, raised/lowered or be turned off.

In a standalone configuration, system defaults to manual on/auto off mode. User must trigger the switch to turn the lights on.

## Occupancy

If occupancy has not been detected after 19 minutes, lighting will be dimmed to 20%. After an additional 1-minute grace period where occupancy is still not detected, the system will turn the lighting off.

In a standalone configuration, daylight harvesting groups nearest to windows will automatically dim lighting for a target light level of 35 foot-candles.

## Options if part of a larger network

Multiple rooms can be connected together as part of a larger DyNet network.

Monitor and manage areas through central head-end software. Access a graphical floor plan to visualize occupancy, light level, and temperature. Edit sensor time out and target foot-candle levels.

If needed, integrate via BACnet to 3rd party systems like HVAC or AV. User interface stations (Antumbra & Revolution) can even report the current room temperature to the central system.

Integrate and participate in Open ADR-based load shedding programs.





Open office **application**

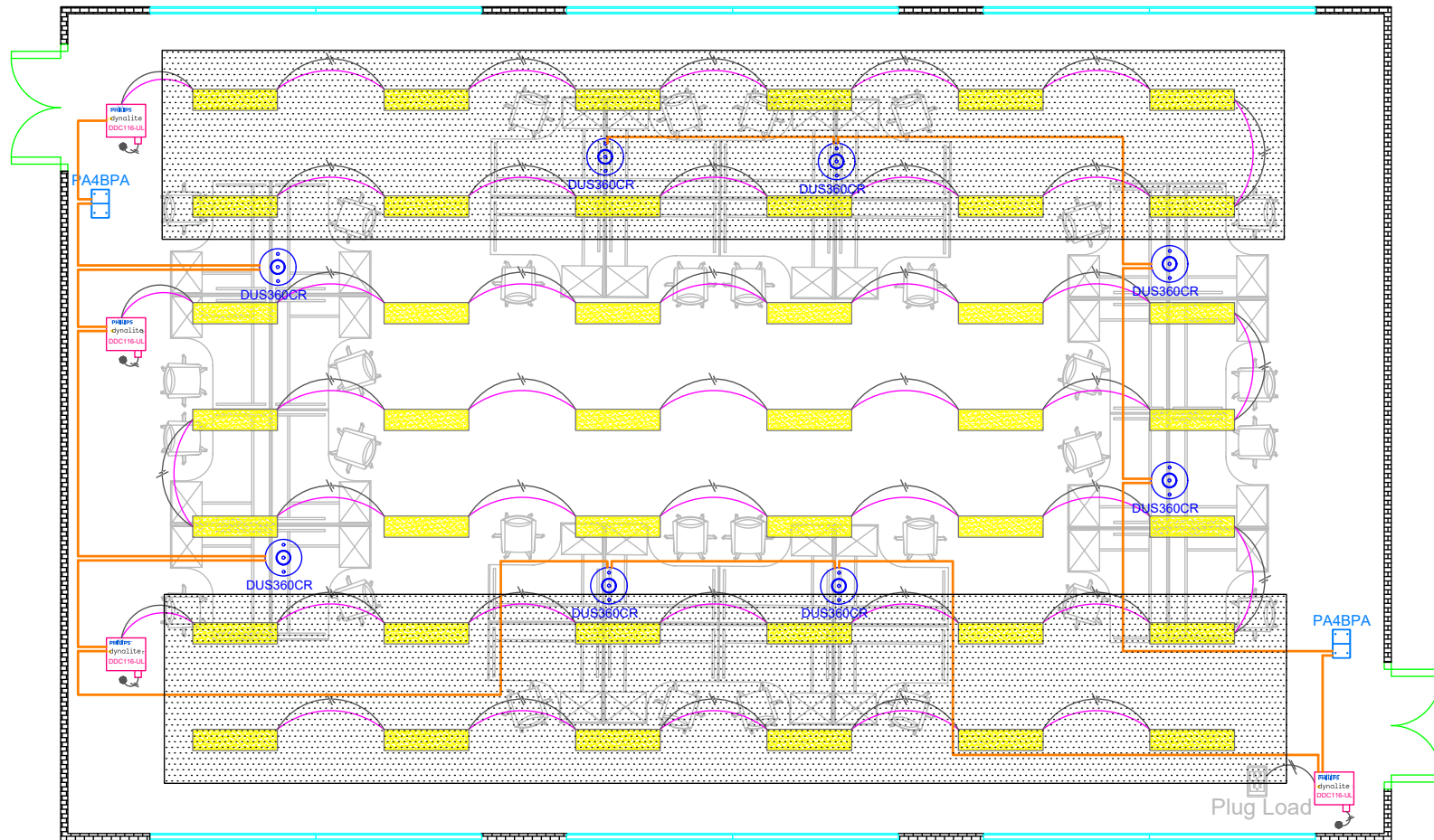
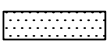
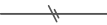









Diagram key	
	Daylight harvesting zone
	Mains line power
	10VDC
	DyNet: Belden 150R/1501P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

Symbol	Qty	Part code	Description
	4	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	8	DUS360CR	Multi functional sensor. Occupancy and daylighting
	2	1 x PA4BPA-WW 1 x DACM	4 button Antumbra station & DACM



Single office **application**



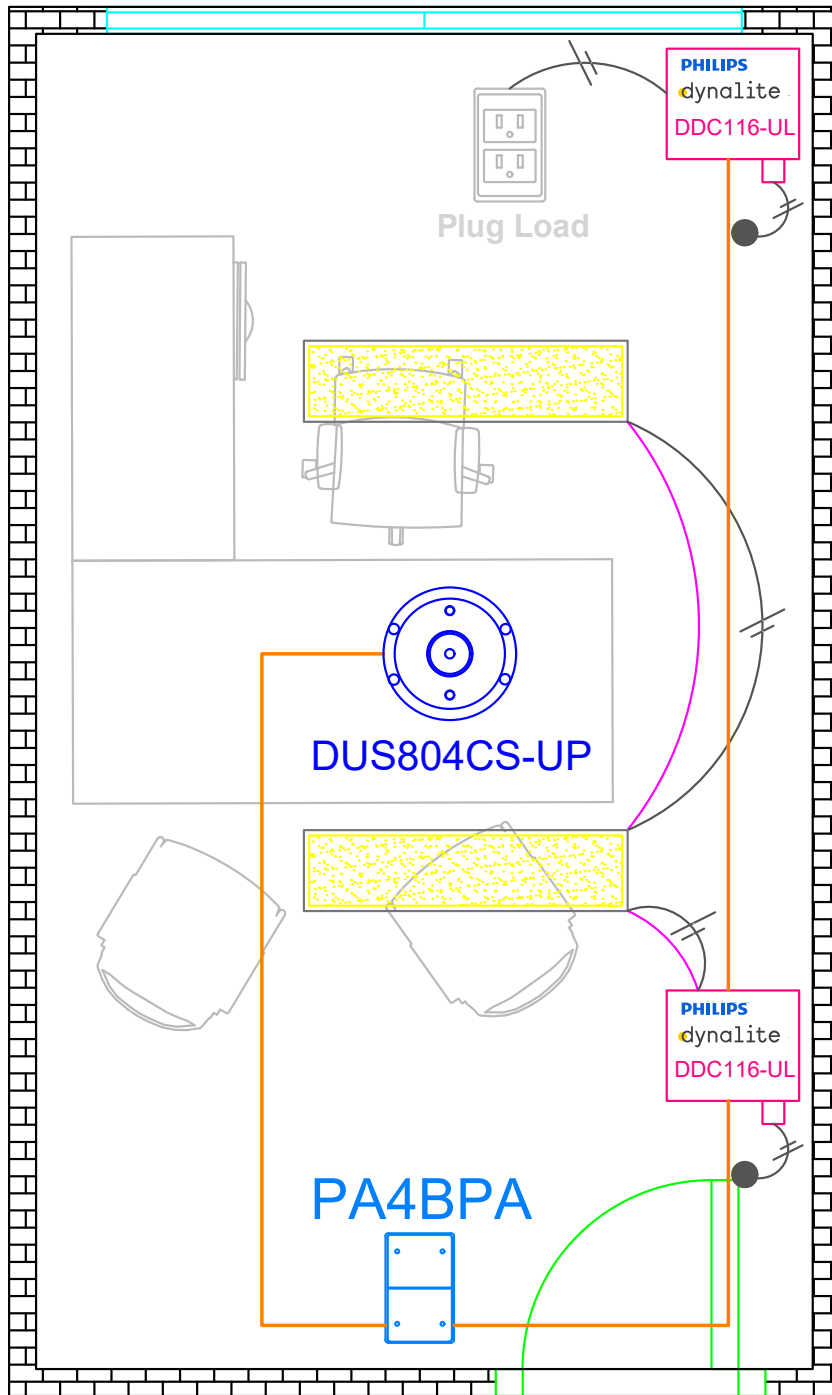


Diagram key	
	Mains line power
	0-10VDC
	DyNet: Belden 1502R/1501P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

Symbol	Qty	Part code	Description
	2	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	1	DUS804CS-UP	Dual tech, multi functional sensor. Occupancy and daylighting.
	1	1 x PA4BPA-WW 1 x DACM	4 button Antumbra station & DACM



Boardroom **application**

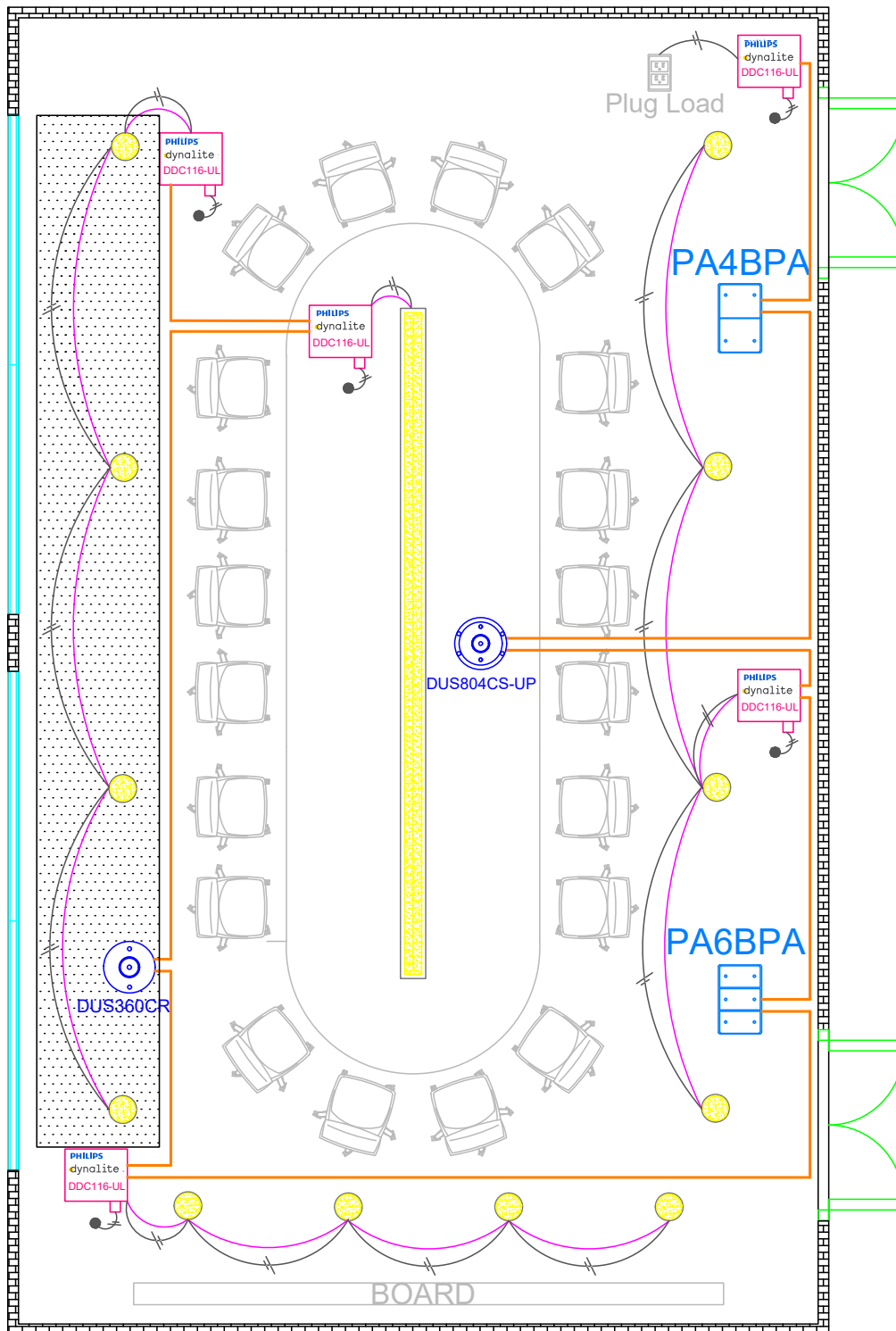
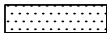
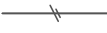













Diagram key	
	Daylight harvesting zone
	Mains line power
	0-10VDC
	DyNet: Belden 1502R/1501P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

Symbol	Qty	Part code	Description
	5	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	1	DUS360CR	Multi functional sensor. Occupancy and daylighting
	1	DUS804CS-UP	Dual tech, multi functional sensor. Occupancy and daylighting.
	1	1 x PA4BPA-WW 1 x DACM	4 button Antumbra station & DACM
	1	1 x PA6BPA-WW 1 x DACM	6 button Antumbra station & DACM



Corridor **application**

Symbol	Qty	Part code	Description
	1	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	3	DUS360CR	Multi functional sensor. Occupancy and daylighting

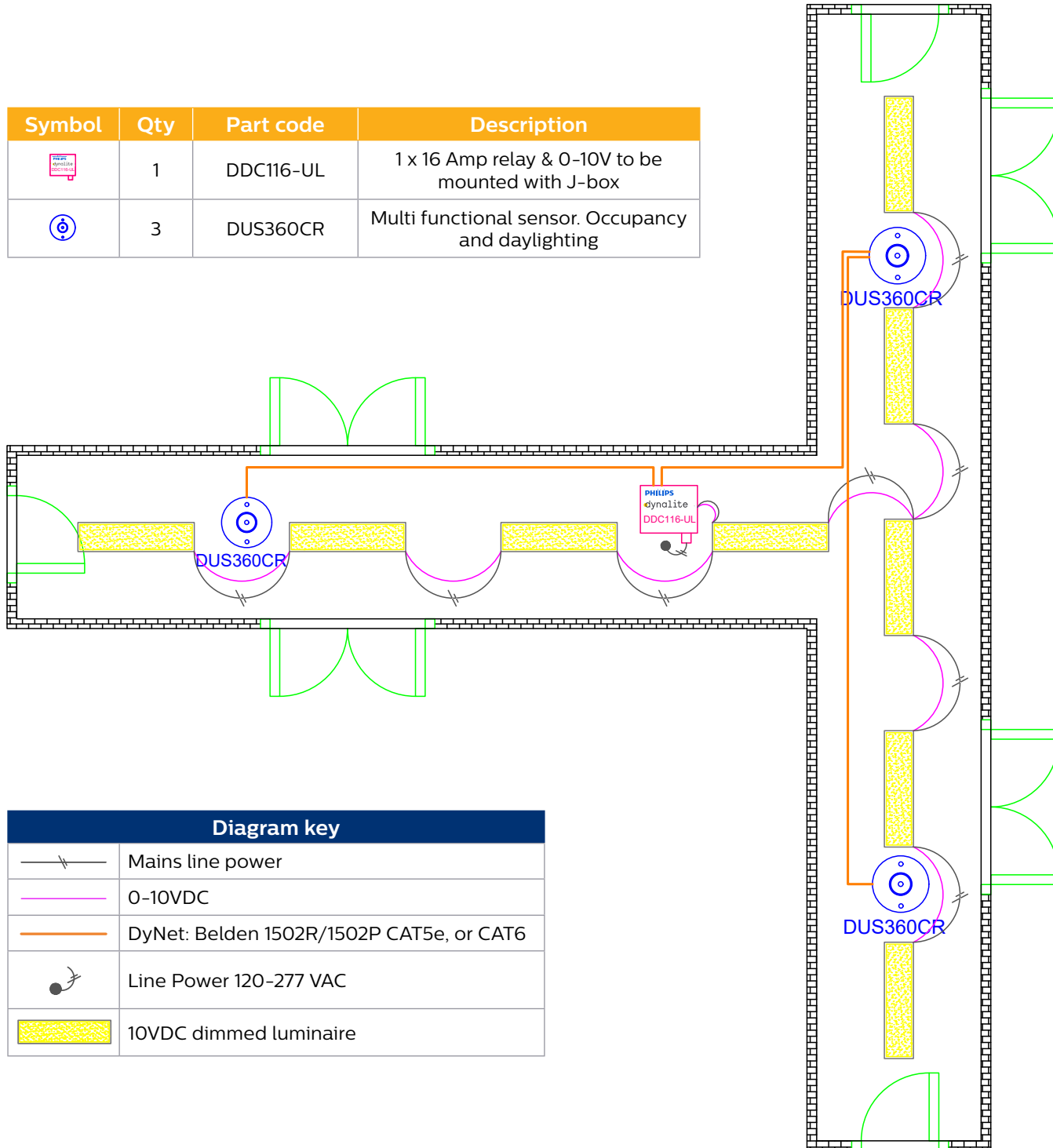
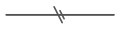






Diagram key	
	Mains line power
	0-10VDC
	DyNet: Belden 1502R/1502P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire



Lobby **application**

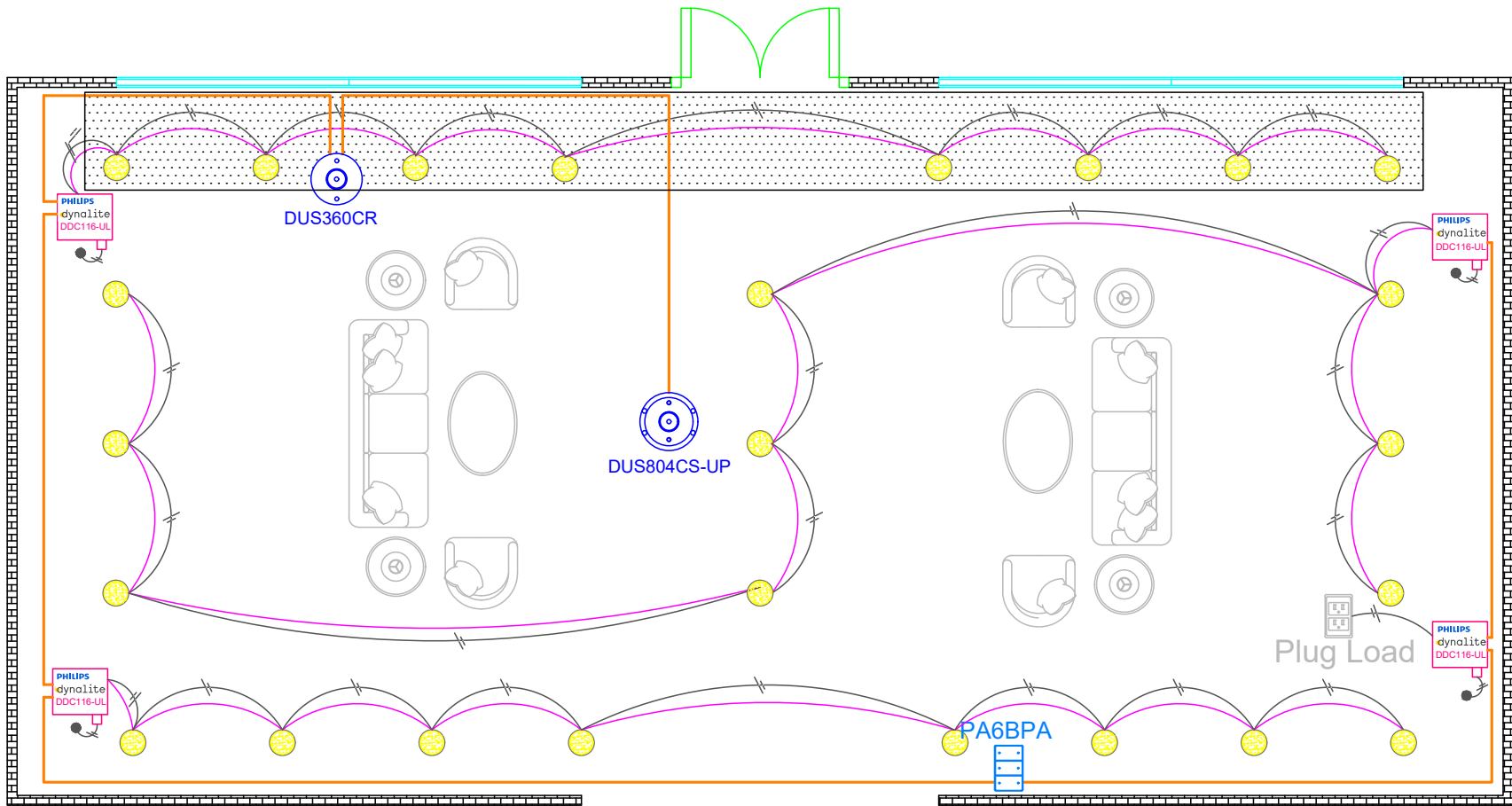


Diagram key	
	Daylight harvesting zone
	Mains line power
	0-10VDC
	DyNet: Belden 1502R/1502P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

Symbol	Qty	Part code	Description
	4	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	1	DUS360CR	Multi functional sensor. Occupancy and daylighting
	1	DUS804CS-UP	Dual tech, multi functional sensor. Occupancy and daylighting.
	1	1 x PA6BPA-WW 1 x DACM	6 button Antumbra station & DACM



Classroom **application**



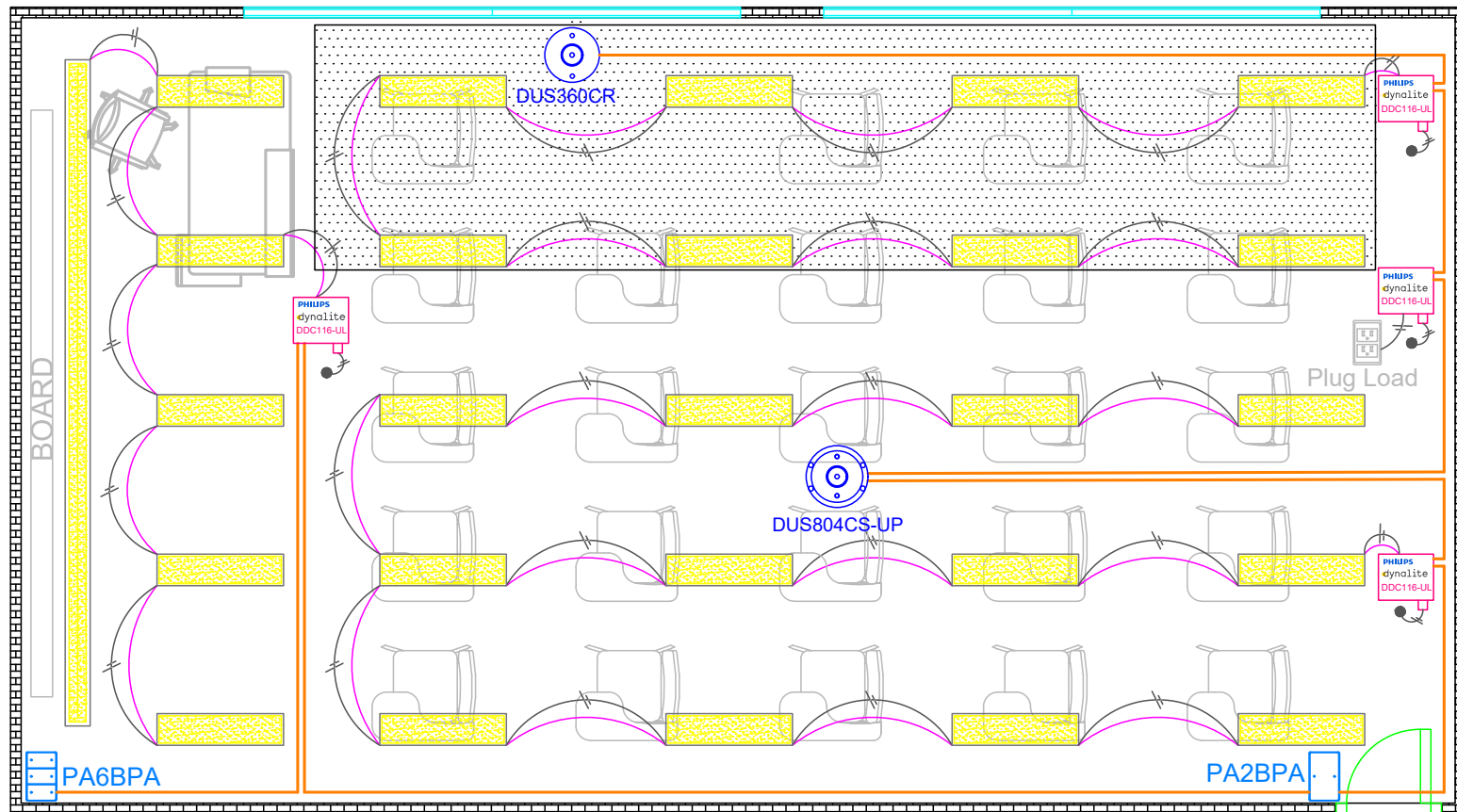














Diagram key	
	Daylight harvesting zone
	Mains line power
	10VDC
	DyNet: Belden 1502R/1502P CAT5e, or CAT6
	Line Power 120-277 VAC
 	10VDC dimmed light luminaire

Symbol	Qty	Part code	Description
	4	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	1	DUS360CR	Multi functional sensor. Occupancy and daylighting
	1	DUS804CS-UP	Dual tech, multi functional sensor. Occupancy and daylighting.
	1	1 x PA2BPA-WW 1 x DACM	2 button Antumbra station & DACM
	1	1 x PA6BPA-WW 1 x DACM	6 button Antumbra station & DACM



Contact your nearest Signify dealer  
for more information.

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