



**Single Zone Controller** DDC116-UL  
Application Guide

# NEW!

# Single Zone Controller

DDC116-UL

The Dyalite DDC116-UL load controller provides intelligent networked control of 0-10V and DALI broadcast lighting circuits, including support for DALI 209 standard for Tunable White capabilities, 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.



PABPA-SSA

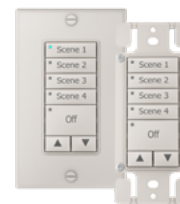


DUS804CS-UP-SSA-O or  
DUS804CS-UP-SSA-V



and/or

DSxA



DUS360CS-DA-SSA



DACM-SSA



## Dedicated Standalone Devices

**DDC116-UL** – Single zone 0-10V or DALI broadcast Relay Controller

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

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

**DSxA** – DirectSet User Interface Range

**Versatile preconfigured DyNet wall stations with 8 layouts:**

**PAXBPA-SSA** – 2, 4 or 6-button wall stations with seven labeling options

**DACM-SSA** – User interface communication module with 15 configurations.

**DUS804CS-UP-SSA-O** or **DUS804CS-UP-SSA-V** – Preconfigured Ultrasonic Sensor  
– and/or –

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

## 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



## Accessories

**D-DACM-DINGUS-RJ45** and **D-DUS-DINGUS-RJ45**

Quick RJ45 connections between different wall stations and sensors

## System Behavior

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





PacifiCharter

## Ordering Guide

Dynalite part code	Description	12NC
DDC116-UL	1 x 0-10 V or DALI broadcast controller with switched power output.	913703376709
DUS360CR-DA-SSA	PIR motion and PE light sensor preprogrammed for Occupancy or Vacancy.	913703389909
DUS804CS-UP-SSA-O	Ultrasonic motion, PIR motion sensor preprogrammed for Occupancy.	913703662809
DUS804CS-UP-SSA-V	Ultrasonic motion, PIR motion sensor preprogrammed for Vacancy.	913703662909
DACM-DyNet-SSA	User Interface comms module preprogrammed for Single System Architecture.	913703668809
PA4BPA-WW-L-SSA-onoff-ramp	Antumbra 4 Button NA White finish (On/Off/Raise/Lower). Configurations 0-5.	913703253109
PA6BPA-WW-L-SSA-presetramp	Antumbra 6 Button NA White finish (On/Off/Medium/Low/Raise/Lower). Configuration 6.	913703253209
PA6BPA-WW-L-SSA-AV-ramp	Antumbra 6 Button NA White finish (On/Off/AV/Present/Raise/Lower). Configuration 7.	913703253309
PA6BPA-WW-L-SSA-AV-present	Antumbra 6 Button NA White finish (On/Off/Medium/Low/AV/Present). Configuration 8.	913703253409
PA6BPA-WW-L-SSA-2Z	Antumbra 6 Button NA White finish (On/Off/Master + Two zones). Configuration 9.	913703253509
PA6BPA-WW-L-SSA-3Z	Antumbra 6 Button NA White finish (On/Off/3 zones). Configuration 10.	913703253609
PA2BPA-WW-L-SSA-onoff	Antumbra 2 Button NA White finish (On/Off). Configurations 11-14.	913703253709
D-DUS-DINGUS-RJ45-QTY10	Suited to DyNet Sensors – 2 x RJ45 sockets, pack of 10	913703254609
D-DACM-DINGUS-RJ45-QTY10	Suited to DyNet DACM plug – 2 x RJ45 sockets, pack of 10	913703254809
DSISRA-W-DN	DirectSet Configuration 0: 1 Scene & Ramping	913703410209
DS2SRA-W-DN	DirectSet Configuration 1: 2 Scene & Ramping	913703410309
DS3SRA-W-DN	DirectSet Configuration 2: 3 Scene & Ramping	913703410409
DS4SRA-W-DN	DirectSet Configuration 3: 4 Scene & Ramping	913703410509
DS5SRA-W-DN	DirectSet Configuration 4: 5 Scene & Ramping	913703410609
DSIS2ZRA-W-DN	DirectSet Configuration 5: 1 Scene + 2 Zones & Ramping	913703410709
DSIS4ZRA-W-DN	DirectSet Configuration 6: 1 Scene + 4 Zones & Ramping	913703410809
DS2S4ZRA-W-DN	DirectSet Configuration 7/8: 2 Scene + 4 Zones & Ramping	913703410909

# 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, intergate 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

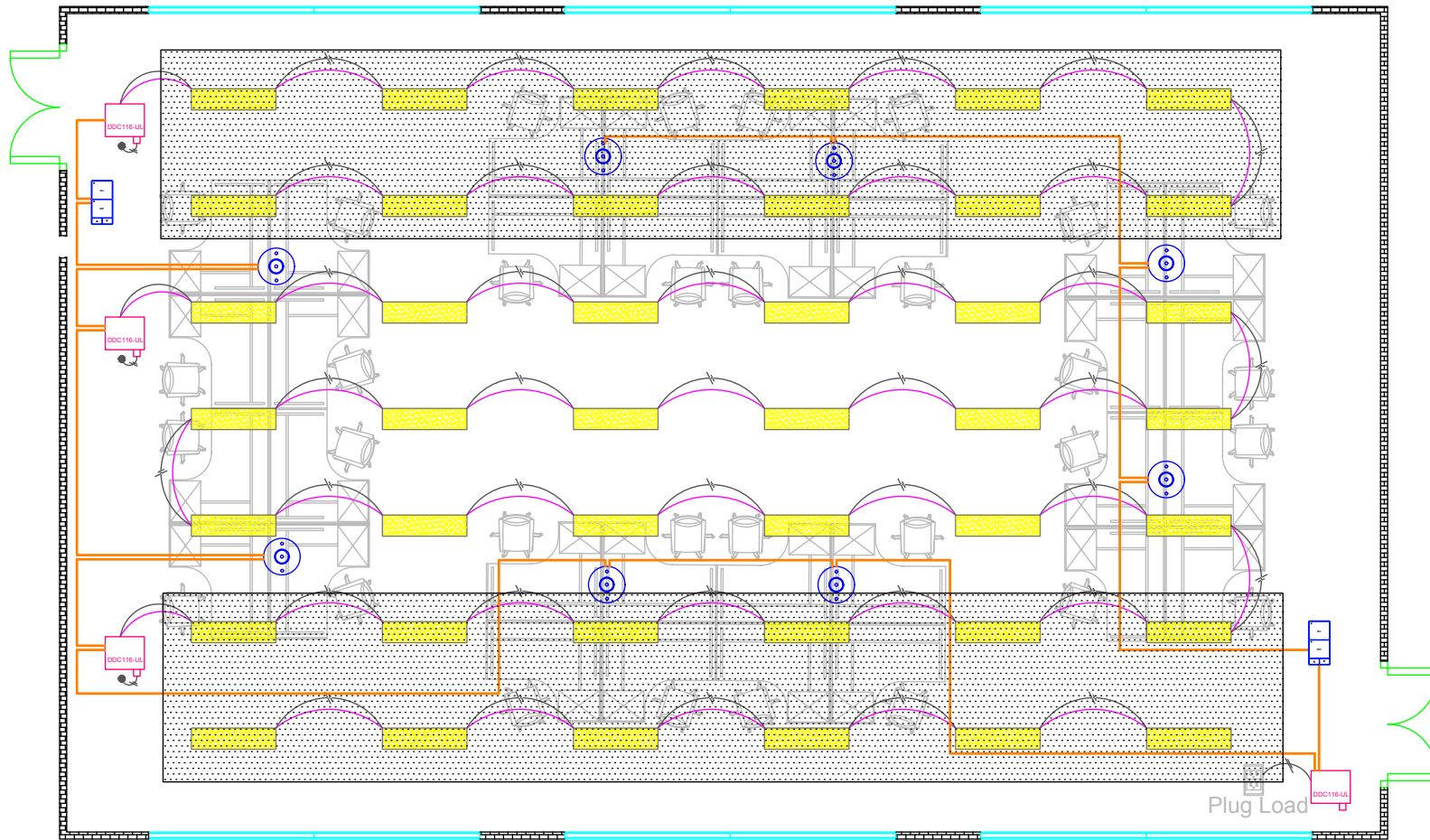
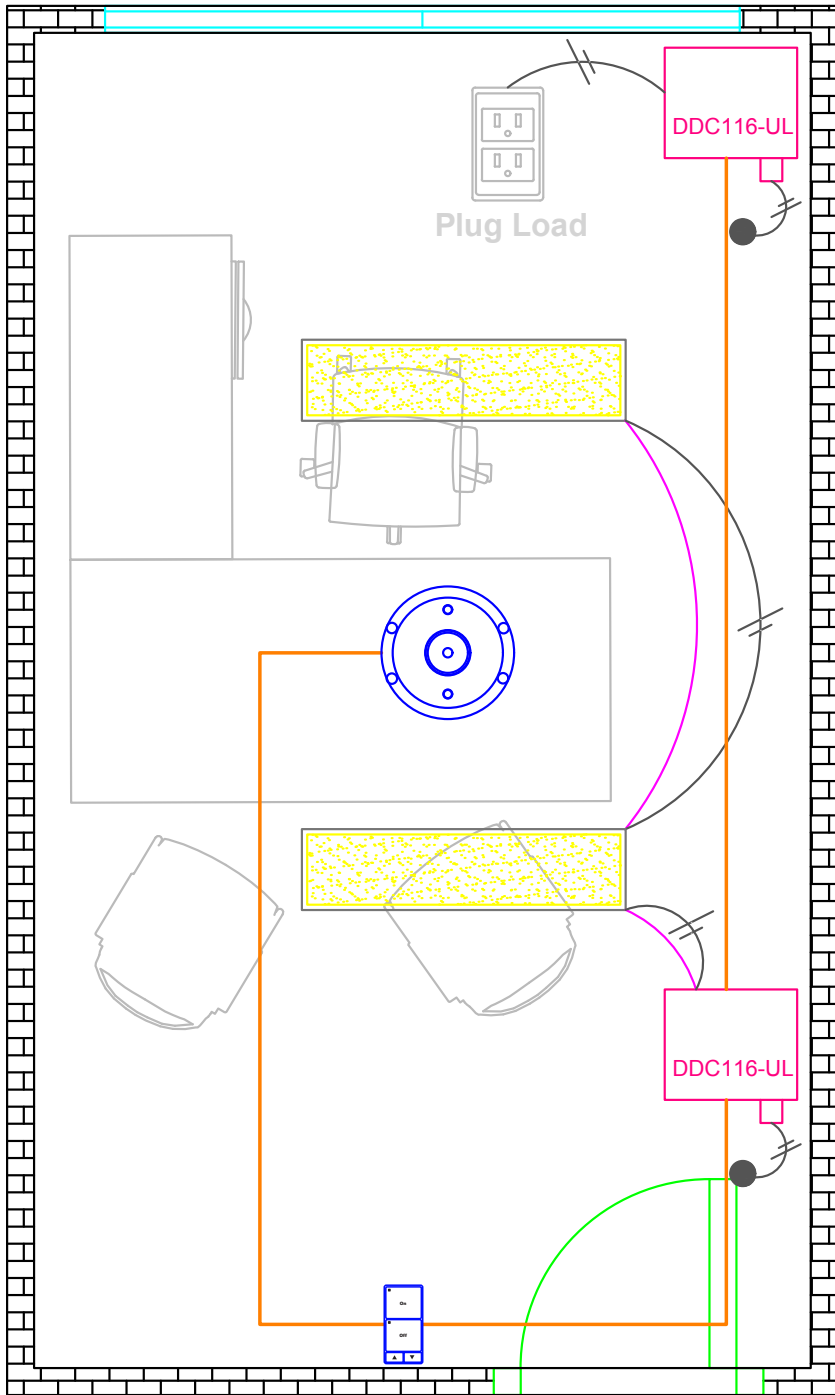


Diagram key	
	Daylight harvesting zone
	Mains line power
	10VDC
	CAT5e or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

Symbol	Qty	Part code	Description
	4	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	8	DUS360CR-DA-SSA	Dipswitch configuration occupancy and daylight harvesting sensor, DUS Dingus RJ45 required
	2	1 x PA4BPA-WW 1 x DACM	4 button Antumbra station & DACM
			- or -
	2	DS2SRA-W-DN	DirectSet 2 Scenes and Ramping interface



Single office application



### Diagram key

	Mains line power
	0-10VDC
	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, DUS Dingus RJ45 required
	1	1 x PA4BPA-WW 1 x DACM	4 button Antumbra station & DACM
	- or -		
	1	DS2SRA-W-DN	DirectSet 2 Scenes and Ramping interface



**Boardroom application**

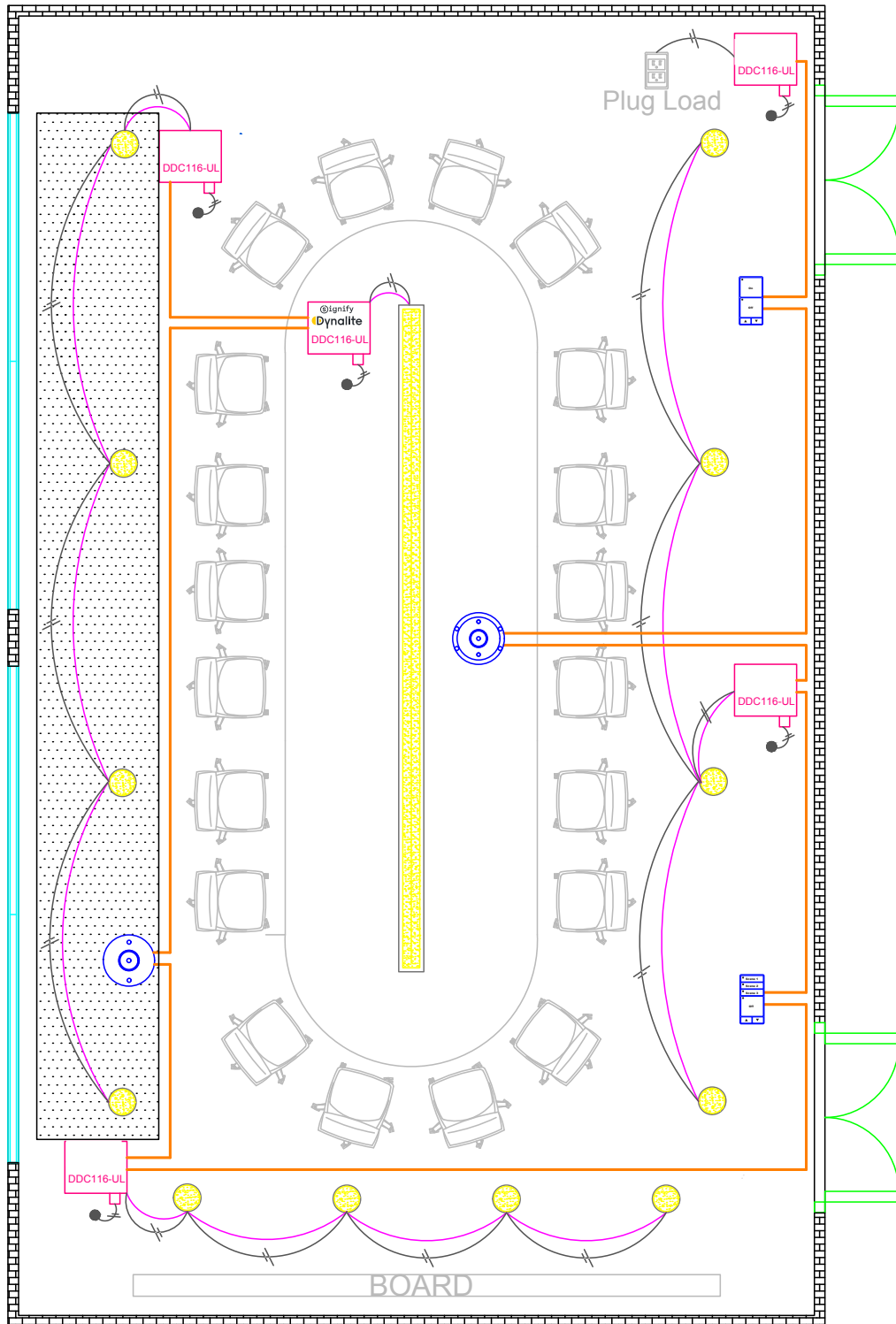




Diagram key	
	Daylight harvesting zone
	Mains line power
	0-10VDC
	CAT5e or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

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. DUS Dingus RJ45 required
	1	DUS804CS-UP	Dual tech, multi functional sensor. Occupancy and daylighting. DUS Dingus RJ45 required
	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
- or -			
	1	DS2SRA-W-DN	DirectSet 2 Scenes and Ramping interface
	1	DS4SRA-W-DN	DirectSet 4 Scenes and Ramping interface



**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-DA-SSA	Dipswitch configurable occupancy and daylight harvesting sensor, DUS Dingus RJ45 required

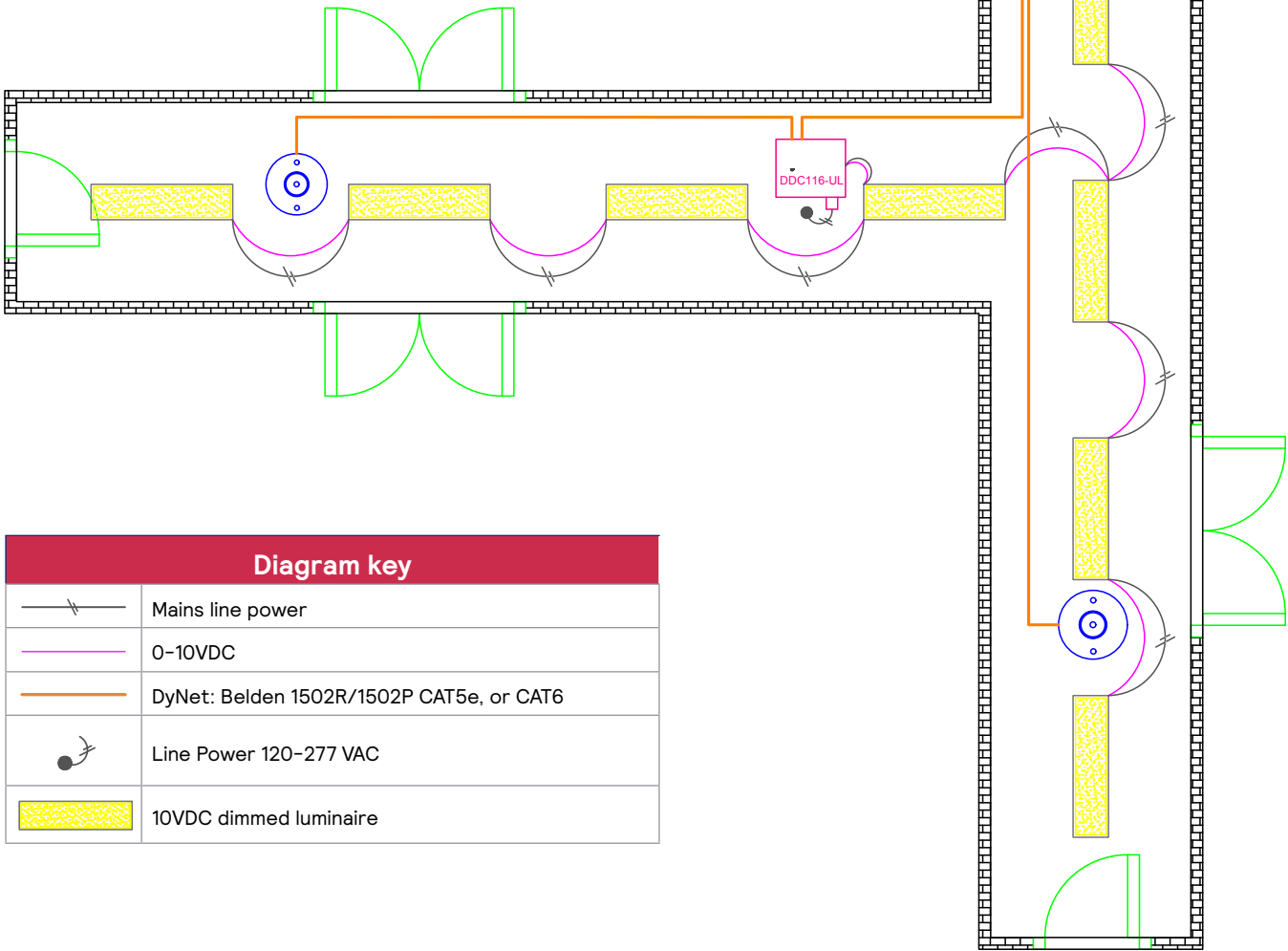







Diagram key	
	Mains line power
	0-10VDC
	DyNet: Belden 1502R/1502P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire



Lobby application

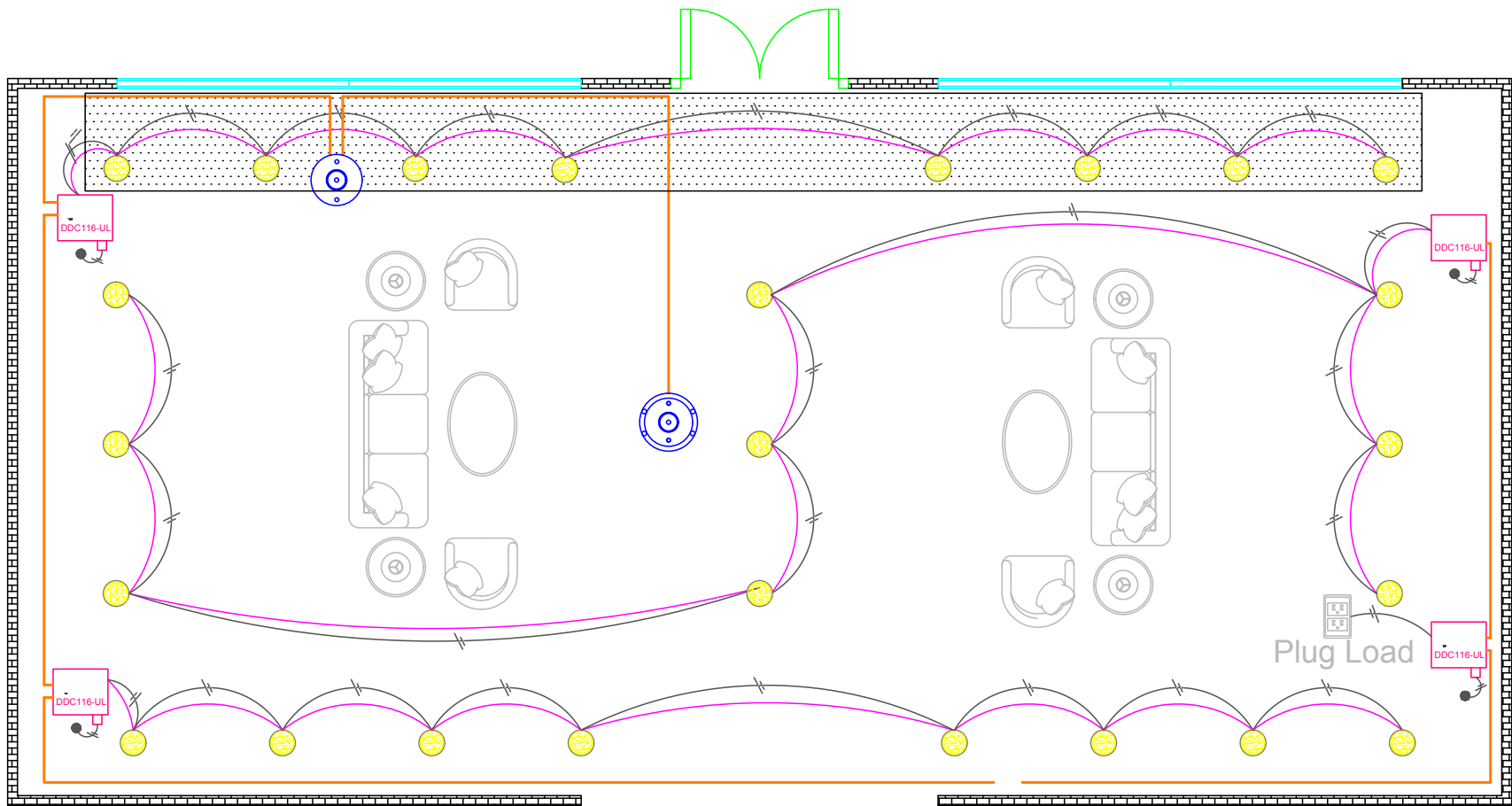


Diagram key	
	Daylight harvesting zone
	Mains line power
	0-10VDC
	DyNet: Belden 1502R/1502P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed luminaire

Symbol	Qty	Part code	Description
	4	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	1	DUS360CR-DA-SSA	Multi functional sensor. Occupancy and daylighting. DUS Dingus RJ45 required
	1	DUS804CS-UP	Multi Dipswitch configurable occupancy and daylight harvesting sensor. DUS Dingus RJ45 Required
	1	1 x PA6BPA-WW 1 x DACM	6 button Antumbra station & DACM
- or -			
	1	DS4SRA-W-DN	On/OFF + 2 Scene dimmer station



Classroom application

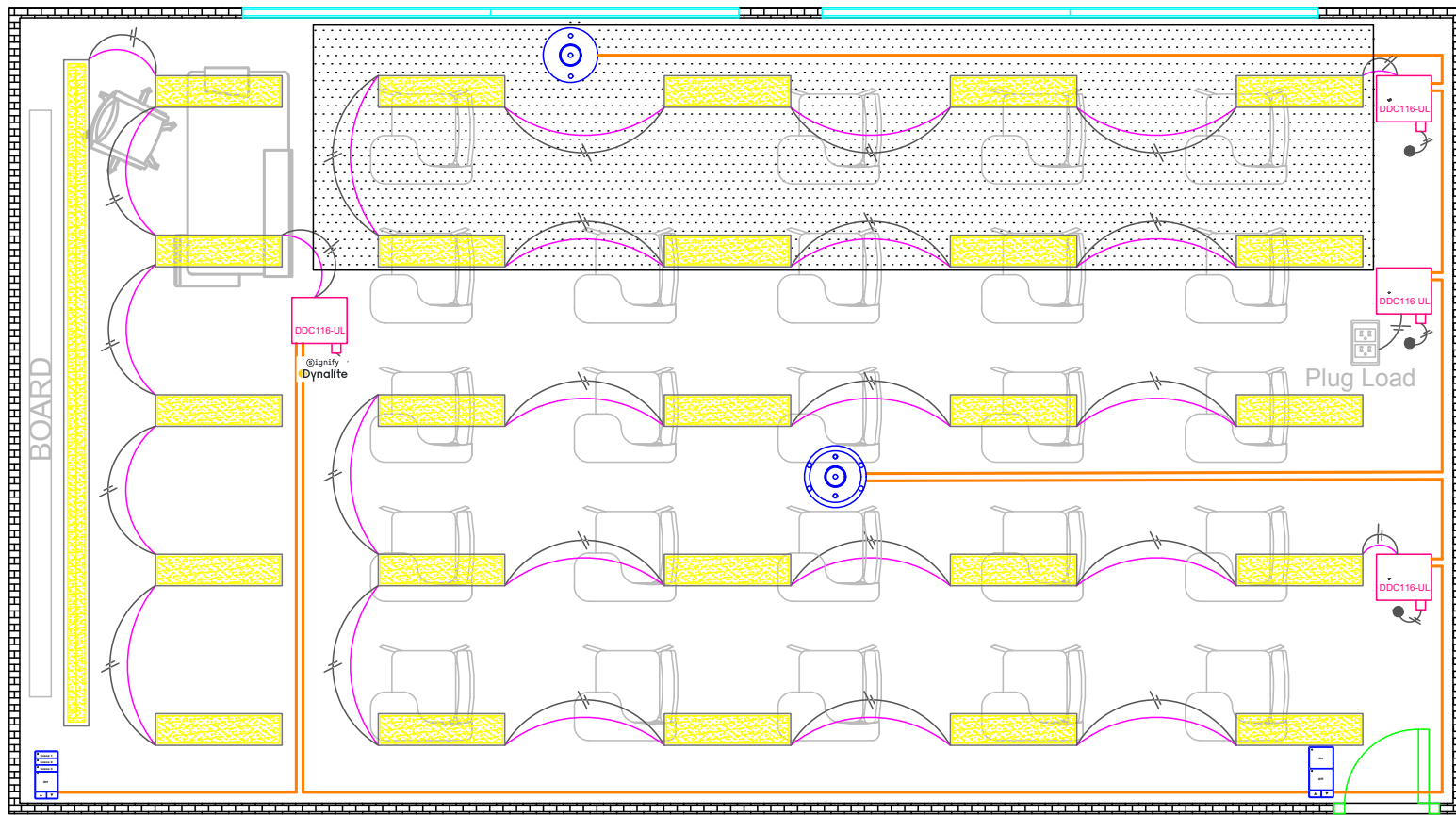


Diagram key	
	Daylight harvesting zone
	Mains line power
	10VDC
	DyNet: Belden 1502R/1502P CAT5e, or CAT6
	Line Power 120-277 VAC
	10VDC dimmed light luminaire

Symbol	Qty	Part code	Description
	4	DDC116-UL	1 x 16 Amp relay & 0-10V to be mounted with J-box
	1	DUS360CR-DA-SSA	Multi Dipswitch configurable occupancy and daylight harvesting sensor. DUS Dingus RJ45 required
	1	DUS804CS-UP	Dual tech, multi functional sensor. Occupancy and daylighting. DUS Dingus RJ45 required
	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
- or -			
	1	DS2SRA-W-DN	On/OFF + 2 Scene dimmer station
	1	DS4SRA-W-DN	On/OFF + 2 Scene dimmer station



Contact your nearest Genlyte dealer for more information.

[www.dynalite.com](http://www.dynalite.com)

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