PHILIPS

dynalite

Single System Architecture

Set-Up Guide

Lighting control made simple

An easy-to-install system that expands to suit different indoor areas

Single System Architecture

Contents

Speed up your lighting control design and installation

Introducing the DDC116, the heart of the Philips Dynalite SSA (Single System Architecture) lighting control solution. The system empowers electrical installers to create lighting control functionality quickly and easily with DIP switches and button settings. Out of the box, the system supports 0-10 V dimming and is reconfigurable to DALI broadcast dimming, making this solution future-proof.

The system enables customers to configure different areas and network specific devices together for code-compliant lighting control functionality without requiring commissioning software. Optionally, customers can use System Builder commissioning software to integrate with a Building Management System over BACnet or to be part of a larger-scale system solution.

System features

High capacity switching relay

16 A lighting load.
20 A general load (plug load).

Suitable for plenum use

UL 2043 and Chicago rated for installation in air-handling plenum spaces. Fits into standard junction box housings.

Dry contact input

For UL 924 emergency or auxiliary input.

Universal voltage

100-277 VAC.

Choice of control protocol

Can be controlled via DyNet or DMX512.

Easy to install

Plug in RJ45 sockets and push-down terminals.

Flexible

Control 0-10 V 100 mA Sink or Source and DALI broadcast. Guaranteed current 100 mA, Maximum 250 mA loads.

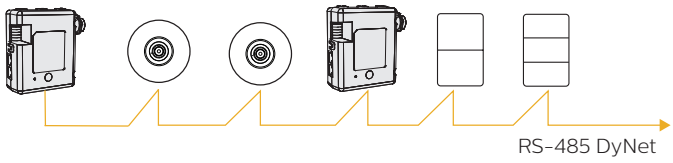
Daisy chained devices

Connect additional controllers and other SSA devices using dual RJ45 connectors or wire to spring terminals.

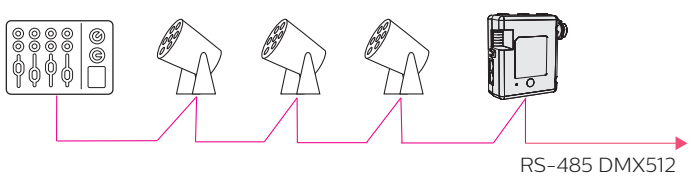
Standalone or networked

Standalone control of up to five lighting zones plus plug load. Can be networked for even larger projects.

DyNet networking



DMX512 networking*

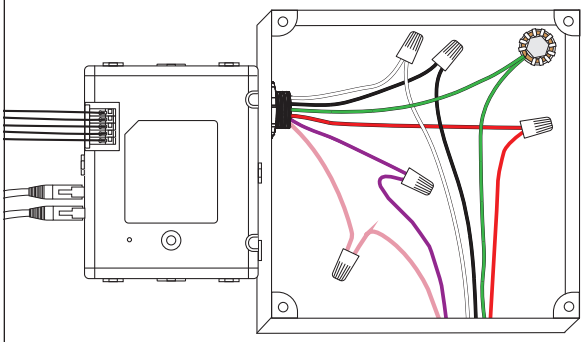


*System Builder is required to change the controller's DMX512 address.

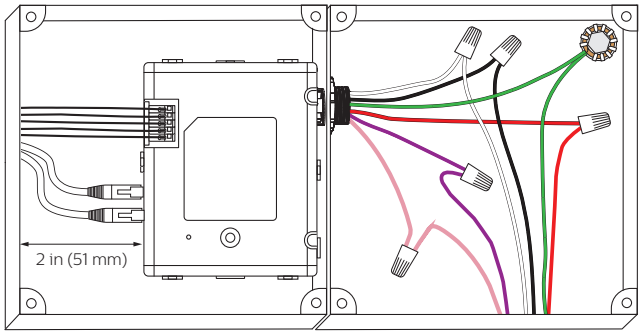
Flexible mounting solution

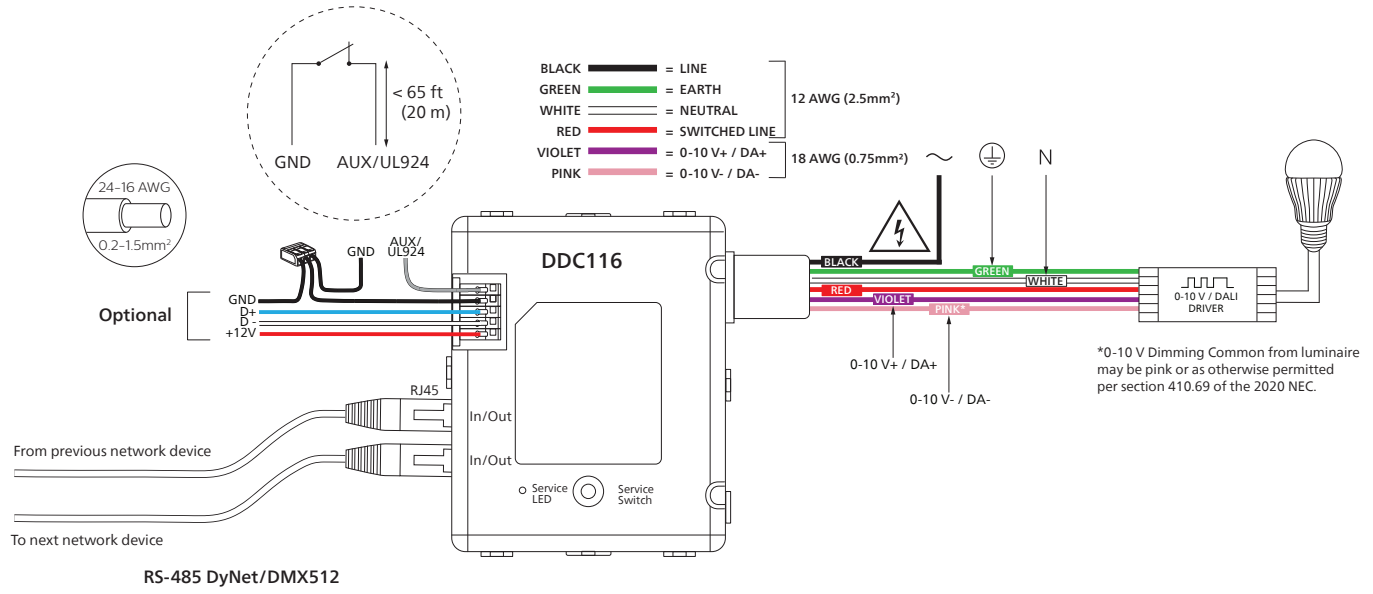
The compact plenum-rated design is compatible with standard junction box wiring schemes, reducing your installation effort and project costs.

UL 2043 Plenum-rated



Chicago Plenum-rated





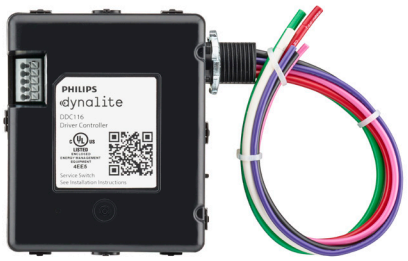
- AUX/UL924 default is Normally Closed (Open = Active).
- Please remove jumper wire between GND and AUX/UL924 terminals if connecting to emergency or other system.
- For DMX512, add a 120 Ohm, 0.5 W termination resistor across D+ and D- on the last DMX512 device.

Installers are empowered to provide a complete service by setting the lighting control functionality.

Lighting controls made simple

Single System Architecture components

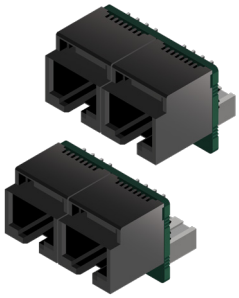
DDC116



PAxBPA-SSA

DUS360CR-DA-SSA

DINGUS-UI-RJ45-DUAL and DINGUS-DUS-RJ45-DUAL



DACM-DyNet-SSA

DUS804CS-UP-SSA (O or V)

For more information about installation, refer to individual device installation instructions.

Installer-configured devices

DDC116 – Single zone 0-10 V/DALI broadcast and relay controller.

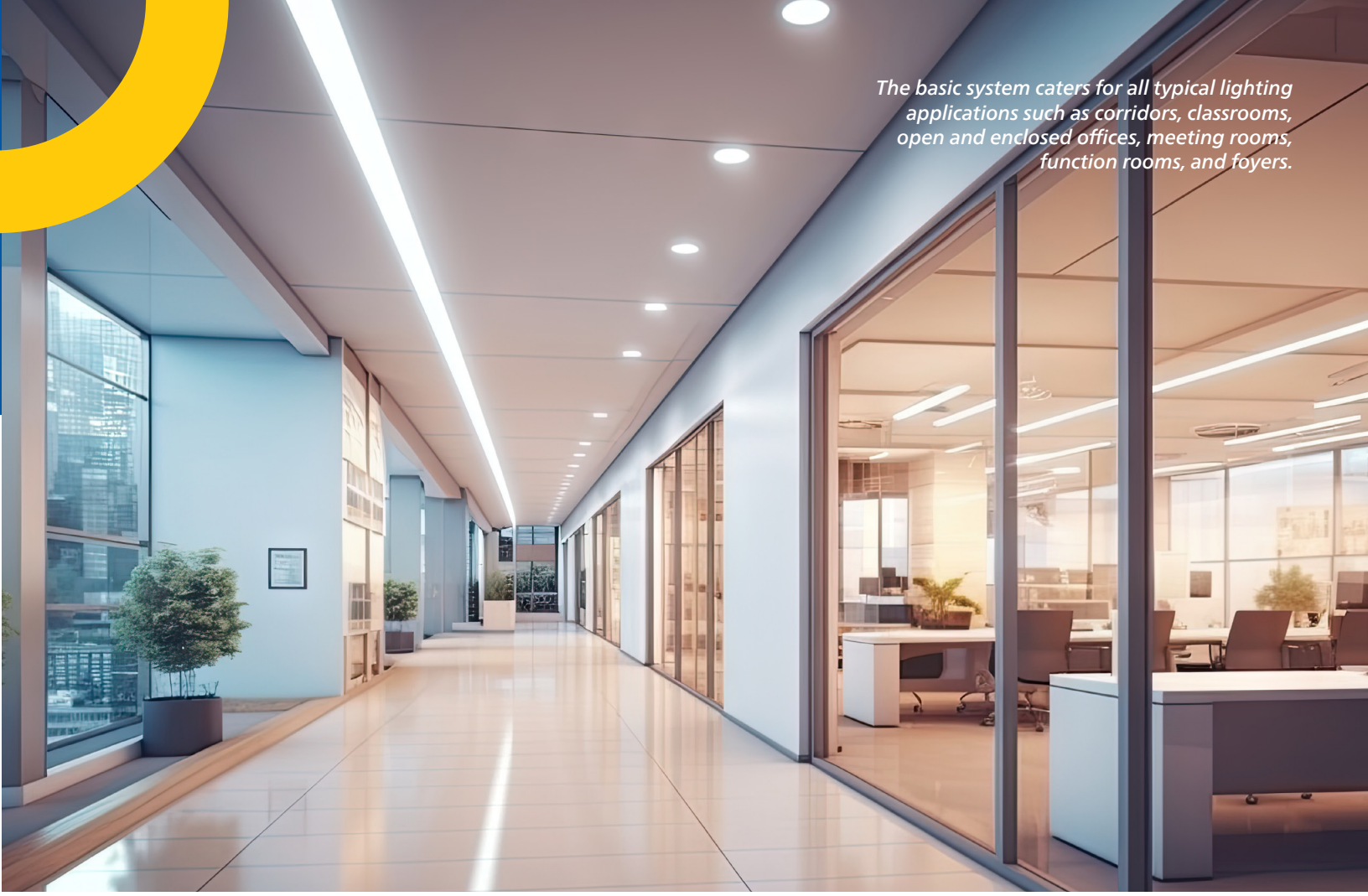
DINGUS-UI-RJ45-DUAL and DINGUS-DUS-RJ45-DUAL – Quick connections between different wall stations and sensors.

PAxBPA-SSA – 2, 4 or 6-button wall stations with seven labeling options.

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

DUS360-DA-SSA – PIR motion and daylight sensor with configurations selectable via DIP switches

DUS804CS-UP-SSA – Ultrasonic motion (occupancy or vacancy).



The basic system caters for all typical lighting applications such as corridors, classrooms, open and enclosed offices, meeting rooms, function rooms, and foyers.

Available functionality

Sensors

- Configurable between Occupancy mode (default) or Vacancy mode.
- Choice of passive infrared or ultrasonic motion detection.
- Configurable timeouts of 5, 10, 15, and 20 minutes (default).
  - 1 minute grace period on all timeouts.
  - 1 hour witness mode to test functionality.
- Built-in daylight harvesting.
- Flexibility to activate primary and secondary daylight zones.

Occupancy mode – Lights turn on if there is motion, lights turn off after the timeout period if there is no motion.

Vacancy mode – Lights are manually turned on from the switch and turn off after the timeout period if there is no motion.

Primary daylight zone – The window zone directly under the sensor.

Secondary daylight zone – The zone farther away from the window with a 20% brighter offset.

Wall stations

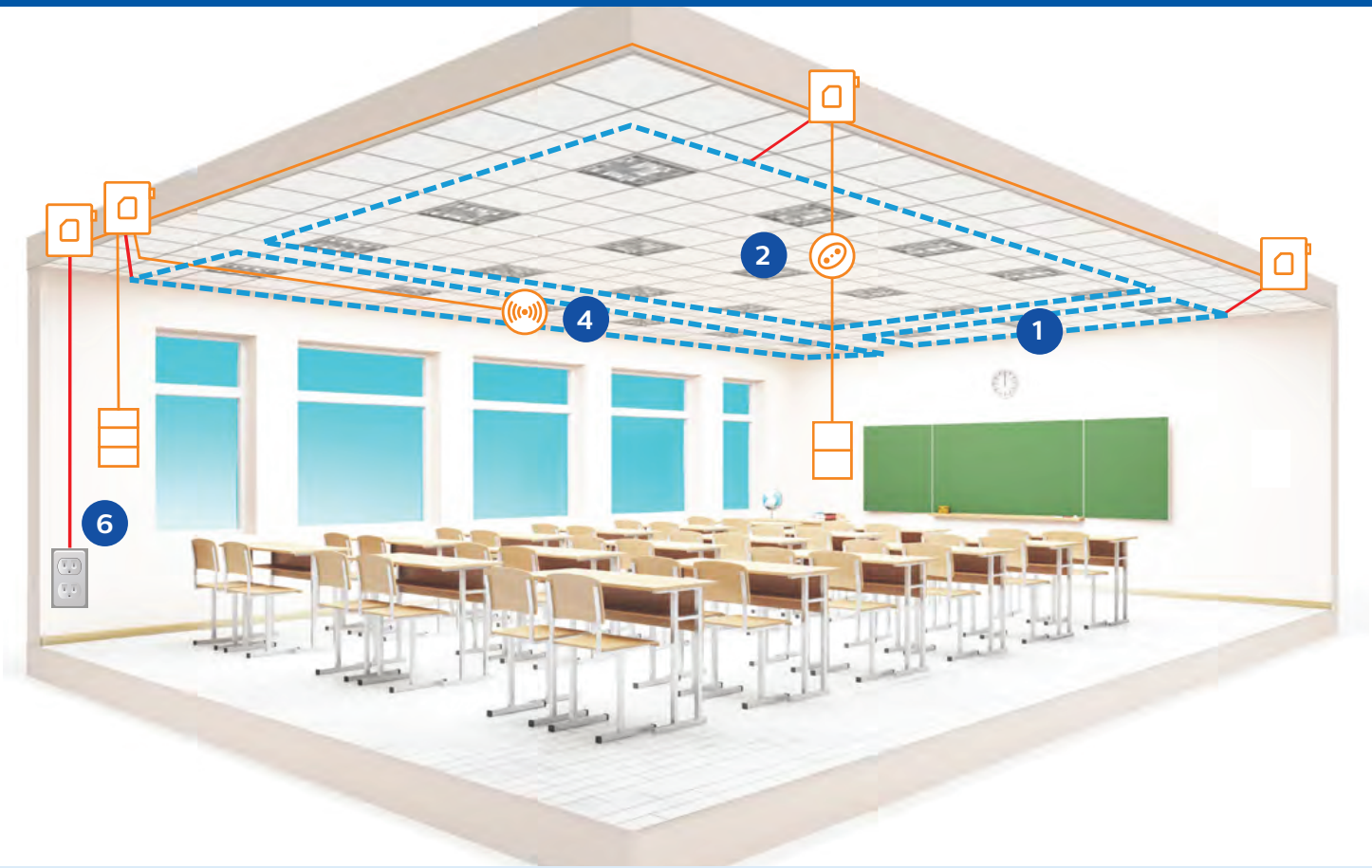
- Control one or all five lighting zones and plug load zone.
- Recall preset lighting scenes.
- Simple intuitive buttons.
- Ramping buttons only affect zones that are on.

Load controllers

The SSA is oriented around the DDC116's configurability via its network sign-on button (service switch) without requiring computer-based commissioning tools. This simplifies the activation process, saving commissioning costs and labor charges. Multiple DDC116s can be connected into a single system to meet the needs of a single area with multiple lighting groups, daylight harvesting zones, and plug loads.

The internal relay saves power by automatically switching off the circuit when lighting loads are dimmed to zero.

System example
– classroom application



DDC116 Single Zone Controller

DUS360CR-SSA Sensor – Daylight

DUS804CS-SSA Sensor– Occupancy

Antumbra 4-Button Station

Antumbra 6-Button Station

Switching and dimming zone output

0-10 V and switched lines

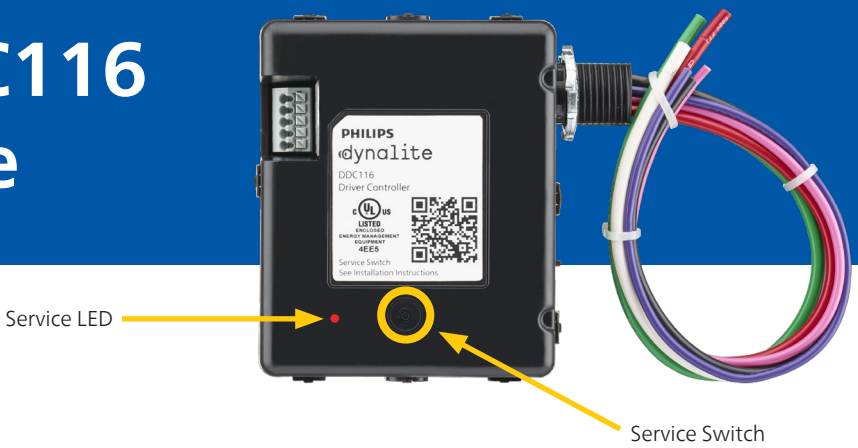
RS-485 DyNet

Floor Zones

1. Screen/Presentation zone (default)
2. Generic Lighting Primary Zone
4. Generic Lighting Primary Daylight Zone
6. Plug load

Step 1

Assigning a DDC116 to the right zone



Setting up Single System Architecture devices

In three steps, you can directly set up devices to harness the power of networked lighting control.

Configuring the controller

Assign the controller to one of the six zones with simple push-button actions.

Service switch functions

1 short push – Send network ID

3 short pushes – Set lights to 100%

4 short pushes – **Lighting zone connection test** (lights flash for 5 minutes)

- Push and hold for 2 seconds – Toggle control type between 0-10 V (Red LED) and DALI Broadcast (Green LED).
- Push and hold for 2 seconds – Save control type and exit Test Mode.

Push and hold for 4 seconds – **Program Mode** (Blue LED flash count indicates the controller zone assignment).
Program Mode times out after 30 seconds of inactivity, discarding changes.

- Short push – Cycle through zone numbers (after each push, the flash count indicates the controller zone assignment).

  Zone 1 = Screen/Presentation Zone (default)

  Zone 2 = Generic Lighting Primary Zone

  Zone 3 = Generic Lighting Secondary Zone

  Zone 4 = Generic Lighting Primary Daylight Zone

  Zone 5 = Generic Lighting Secondary Daylight Zone (20% brighter)

  Zone 6 = Plug Load Zone
- Push and hold for 4 seconds – Save changes and exit Program Mode. The device reboots and is ready to start work!

Service LED indications

- Red: Output type = 0-10 V.
- Green: Output type = DALI Broadcast.
- Slow: 1 flash per second when device is idle.
- Medium: 2 flashes per second when DyNet bus is busy.
- Fast: 3 flashes per second when a message is addressed to the controller.
- Medium: 2 flashes per second, alternating red and blue when in emergency mode.

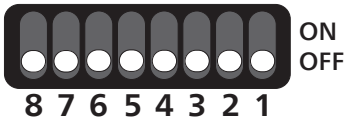
Step 2

Configuring a sensor

DIP switches

Projects can choose between a PIR or dual-technology PIR and ultrasonic motion sensor. Ultrasonic sensors are available in occupancy or vacancy mode. Timeouts can be set for specific projects and multiple sensors can be used together to cover larger areas*. The inbuilt light sensor on the PIR sensor can also be used for daylight-based dimming (daylight harvesting).

DUS360CR-DA-SSA Settings (default)



1. Motion sensor mode

Occupancy mode
Auto on with occupancy and Auto off after timeout

Vacancy mode
Manual on from station and Auto off after timeout

2. Light level sensor

Enabled

Disabled

3. Daylight zone minimum level, if SW 2 is on

Lighting will dim to 0%

Lighting will dim to 20%

4 & 5. Timeout

20 Min

15 Min

10 Min

5 Min

6. Auto-on level if SW 1 is on

Ramp lighting to 90%

Ramp lighting to 50%

7. Reserved

8. Witness mode

Reduce timeouts by 90% for 1 hour

Normal operation

DUS804CS-UP-SSA-O/V Ultrasonic Settings

20 minute default timeout or inherits timeout settings from DUS360CR-DA-SSA if used together.

Two different control strategies available:

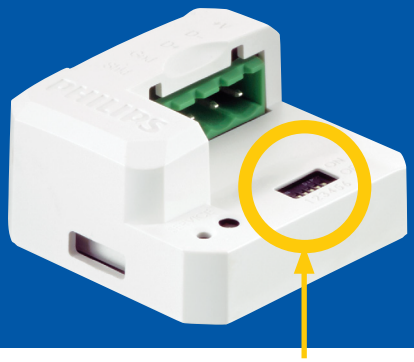
Occupancy mode response – Auto on & Auto off.

Vacancy mode response – Manual on & Auto off.

*Ultrasonic sensors must be placed at least 60ft (18 m) apart to avoid interacting with each other.

Step 3

Configuring wall stations with the DACM



DIP switches

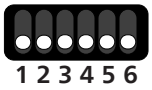
15 Station configurations

Set the DACM DIP switches to select your required button functions.

4-Button Options

PA4BPA-WW-L-SSA-onoff-ramp

0. All zones – On/Off/Raise/Lower



1. Zone 1 – On/Off/Raise/Lower

2. Zone 2 – On/Off/Raise/Lower

3. Zone 3 – On/Off/Raise/Lower

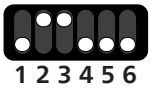
4. Zone 4 – On/Off/Raise/Lower

5. Zone 5 – On/Off/Raise/Lower

6-Button Options

PA6BPA-WW-L-SSA-preset-ramp

6. All zones – On/Off/Medium/Low/Raise/Lower



PA6BPA-WW-L-SSA-AV-ramp

7. All zones – On/Off/AV/Present/Raise/Lower

PA6BPA-WW-L-SSA-AV-present

8. All zones – On/Off/Medium/Low/AV/Present

PA6BPA-WW-L-SSA-2Z

9. All zones + 2 dedicated zones – On/Off

PA6BPA-WW-L-SSA-3Z

10. 3 dedicated zones – On/Off

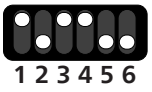
2-Button Options

PA2BPA-WW-L-SSA-onoff

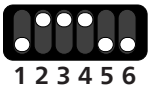
11. All zones – On/Off

12. Zone 1 – On/Off

13. Zone 2 – On/Off



14. Zone 3 – On/Off



Ordering codes – Single System Architecture

Dynalite part code	Description	12NC
DDC116	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.	
PA4BPA-WW-L-SSA-onoff-ramp	Antumbra 4 Button NA White finish (On/Off/Raise/Lower). Configurations 0-5.	
PA6BPA-WW-L-SSA-preset-ramp	Antumbra 6 Button NA White finish (On/Off/Medium/Low/Raise/Lower). Configuration 6.	
PA6BPA-WW-L-SSA-AV-ramp	Antumbra 6 Button NA White finish (On/Off/AV/Present/Raise/Lower). Configuration 7.	
PA6BPA-WW-L-SSA-AV-present	Antumbra 6 Button NA White finish (On/Off/Medium/Low/AV/Present). Configuration 8.	
PA6BPA-WW-L-SSA-2Z	Antumbra 6 Button NA White finish (On/Off/Master + Two zones). Configuration 9.	
PA6BPA-WW-L-SSA-3Z	Antumbra 6 Button NA White finish (On/Off/3 zones). Configuration 10.	
PA2BPA-WW-L-SSA-onoff	Antumbra 2 Button NA White finish (On/Off). Configurations 11-14.	
DINGUS-UI-RJ45-DUAL	Suited to DACM - DyNet – 2 x RJ45 sockets, pack of 10. Cannot be used with DUS.	913703334609
DINGUS-DUS-RJ45-DUAL	Suited to DyNet DUS sensor range – 2 x RJ45 Sockets, pack of 10.	913703064409

Ready to leverage the power of Dynalite

Being true network devices, the options are limitless. SSA configuration is fully customizable via System Builder software to serve more advanced project requirements. Expanding with other Dynalite network devices enables other dimming types, BACnet integration, scheduling, head-end software monitoring and management, and more.

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