This document is intended for Lighting Control Systems professionals

This document applies to fixture with factory installed SVPD1, SVPD2, SVPD3 integrated sensors.

Table of contents

Quick Reference Guide	2
Integrated sensor and remote overview	2
Features and Default Settings	3
Making Adjustments to Default Scene Levels	4
Step 1: Disable daylighting dimming (optional)	4
Step 2: Set scene levels	4
Making Adjustments to Other Settings	5
Set sensor time-out value	5
Set sensitivity level	5
Enable/disable daylight switching	5
Issuing manual commands	5
Troubleshooting guide	5-7



Quick Reference Guide

This guide is provided as a quick reference. Please review this document in its entirety prior to adjusting settings.

		THILE	Recommendation			Time
enable/ disable daylight dimming	1	×.	individual fixture	For fixtures located in non-daylight zones, disable daylight dimming	SET + 75 + 0R Daylight Dimming Disable Daylight Dimming	00:58
set occupancy detection scene level	2	(all fixtures in space	Set all fixtures in the space to the desired ON/OFF configuration and desired light level then save at each fixture	(← SET + Occ	1:39 2:12
set unoccupied scene level	3	(all fixtures in space	Set all fixtures in the space to the desired ON/OFF configuration and desired light level then save at each fixture	10 sec. + SET + Occ	1:39 2:12
set occupancy energy saver scene level	4	(individual fixture	Set all fixtures in the space to the desired ON/OFF configuration and desired light level then save at each fixture	(₩) + SET + ES	1:39 2:12
set occupancy time-out	any time	÷.	individual fixture	-	5 OR 10 OR 15 OR 20	3:50
set occupancy sensitivity	any time	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	individual fixture	-	LO OR HI	_
enable/ disable daylight switching	any time	×.	individual fixture	-	SET + 75 + 0R 20 Disable Daylight Switching	

Т

= Perform this adjustment any time of day or night Perform this adjustment at night or when no daylight is present = Do not move for 10 seconds prior to performing the "SET" command



ISHH-01



ISHH-02



Integrated sensor and remote overview

The SVPD integrated sensor is installed in the selected fixture at the factory. Once power is applied, the sensor will begin operation after a 1 minute power up period. Motion activity will cause the sensor's red LED to flash. The sensor's red LED may also flash differently during programming.

The SVPD integrated sensor's default behavior is adjusted using the ISHH-01 programming remote. The ISHH-02 personal remote is also available to allow for scene recall and temporary light level changes.

Features and Default Settings

This programming guide discusses how to modify the basic out-of-the-box behavior of the SVPD series sensor (SVPD1, SVPD2, SVPD3). The SVPD series integrated sensor allows for quick and easy control of individual luminaires. Out-of-the box, the SVPD integrated sensor will:

- Turn ON lighting to 100% based on occupancy (daylight adjustment may reduce light level).
- Reduce lighting during daylight hours based on the availability of natural daylight.
- Turn off lighting automatically when no occupancy is detected for a period of 20 minutes.

Feature	Description	Default	User Programmable Settings
Occupancy detection scene level	The light level the fixture will go to when occupancy is detected. If daylight dimming is enabled, when the fixture is in this scene at night the integrated sensor will "capture" the light level. The fixture will use this "captured" level as a target to dim the electric lighting during the daytime hours.	Auto-ON to 100% ¹	 Yes. Adjust to any desired light level. Adjust to modify daylight dimming or daylight switching target light level².
Occupancy energy saver scene level	The light level that the fixture will reduce to if the space remains unoccupied for half of the occupancy time-out period.	100% - Occupancy Detection Scene	Yes. Adjust to any desired light level.
Unoccupied scene level	The light level that the fixture will go to when the space remains unoccupied for the full amount of the programmed occupancy time-out period.	OFF	Yes. Adjust to any desired light level.
Occupancy time-out	The period of time that the lighting will remain at the current level after the space becomes unoccupied.	20 min.	Yes. Adjust to 5, 10, 15, or 20 minutes.
Occupancy sensitivity	Adjusts the motion activity coverage area. Sensors that pick up motion activity beyond the desired area may be set to "LO" to reduce false triggering.	High	Yes. Adjust to high or low.
Daylight dimming	Automatically dims the electric lighting in response to natural daylight in the space.	Enabled	Yes. Disable or enable daylight dimming.
Daylight switching ³	Automatically turns OFF the fixture through an internal relay when daylight contribution exceeds 150% of the maximum nighttime light level output (based on occupancy detection scene light level captured at night). Lighting will remain OFF for 30 minutes and then re-evaluate based on the light level and occupied state.	Disabled	Yes. Disable or enable daylight switching.



¹ If daylight dimming is enabled, the fixture may dim below this level based on available daylight.

² If daylight dimming or daylight switching are enabled, adjustments to the occupancy detection scene will raise or lower the target level for the daylight dimming or daylight switching.

³ Daylight switching is recommended only for outdoor applications.

Making Adjustments to Default Scene Levels

When adjusting scene level defaults, follow the below sequence for the best results:
Step 1: Disable daylight dimming control in fixtures not in active daylighting areas
Step 2a: Set the occupancy detection scene level
Step 2b: Set the unoccupied scene level
Step 2c: Set the energy saver scene level (optional)

Step 1: Disable daylighting dimming (optional)

Prior to adjusting any scene levels, disable daylight dimming for fixtures located in non-daylight zones.

- 1. Stand directly below the fixture and point the remote at the integrated sensor.
- 2. Press the "SET" button. The sensor's red LED should flash rapidly.
- 3. Within 5 seconds, press the "75" button. The LED should continue to flash rapidly.
- 4. Press the "10" button. The LED should flash three times with a short blink pattern.*
- 5. Repeat for additional fixtures as needed.

Note: to re-enable daylight dimming, follow steps 1 through 3. At step 4, press the "5" button. The LED should flash three times with a long blink pattern. (*The occupancy detection scene level, unoccupied scene level and energy saver scene level will be restored to default levels when this setting is changed.*)

Step 2: Set scene levels

Configure the scene levels in the following order for best results:

- a. Set the occupancy detection scene level
- b. Set the unoccupied scene level
- c. Set the energy saver scene level (optional)

The occupancy detection scene levels, unoccupied scene level, and energy saver scene levels are all set using the same procedure with the exception of the button being pressed to save the scene. Before you begin:

- Make scene level adjustments at night (or use shading) with only electric light present in the space. This is critical to operation of daylight dimming and overall performance.
- When making adjustments to any scene turn ON and adjust the light level of all lighting before saving the scene to each individual fixture to ensure uniform results.
- Make adjustments when there is no motion activity. The sensor may not capture the proper daylight level if its LED is flashing.

Repeat the steps below for each scene. Complete configuration of the scene for all fixtures before moving on to the next scene.

- 1. Turn all lighting in the space ON or OFF in the desired pattern for the scene by using the remote's (ON/OFF) button.
- 2. Use the remote's raise and lower buttons to adjust all of the fixtures in the space to the desired light level for the scene.
- 3. Stand directly below a fixture and point the remote at the integrated sensor. Stand still for 10 seconds and verify that the sensor's red LED is not flashing.
- 4. Press the "SET" button. The sensor's red LED will flash rapidly.
- 5. Within 5 seconds, press the desired scene button. The LED will blink steadily for 5 seconds.
- 6. Repeat steps 3 through 6 until the setting is saved at all fixture locations.

Scene	Button
Occupancy detection scene	"Occ"
Unoccupied scene	"UnOcc"
Energy saver scene	"ES"

Making Adjustments to Other Settings

Set sensor time-out value:

- 1. Stand directly below the fixture and point the remote at the integrated sensor.
- 2. Press the preferred time-out button ("5", "10", "15", or "20" minutes). The sensor's red LED will blink steadily for 5 seconds.
- 3. Repeat for all additional fixtures.

Set sensitivity level

If an integrated sensor is triggering with activity outside of the desired area, the coverage area may be reduced.

- 1. Stand directly below the fixture and point the remote at the integrated sensor.
- 2. Press the "LO" button (reduced coverage) or the "HI" button (full coverage). The sensor's red LED will blink steadily for 5 seconds.
- 3. Repeat for additional fixtures as needed.

Enable/disable daylight switching

Daylight switching is disabled by default. Enable it only in outdoor lighting applications where there is ample daylight to avoid nuisance switching.

- 1. Stand directly below the fixture and point the remote at the integrated sensor.
- 2. Press the "SET" button. The sensor's red LED should flash rapidly.
- 3. Within 5 seconds, press the "75" button. The LED should continue to flash rapidly.
- 4. Press the "15" button. The LED should flash with a slow blink pattern followed by a short blink pattern.*
- 5. Repeat for additional fixtures as needed.

Note: to disable daylight switching, follow steps 1 through 3. At step 4, press the "20" button. The LED should flash with a short blink pattern followed by a long blink pattern.

Issuing manual commands

The ISHH-01 programming remote and the ISHH-02 personal remote can issue temporary scene and raise and lower commands. Manual commands will remain in effect until the occupancy time-out period expires.*

- 1. Stand directly below the fixture and point the remote at the integrated sensor.
- 2. Press the scene button (ES, MIN, 50, Occ, 75, MAX, UnOcc) or use the raise and lower control to adjust lighting to the desired level. The sensor's red LED should flash twice to acknowledge the command.

3. Repeat for any additional fixtures.

*Daylight dimming and energy saver transitions will be suspended until the occupancy time-out period expires if the MIN, 50, 75, or MAX scene buttons are pressed:

Issue	Possible Causes	Suggestions
Lights will not turn ON automatically	line voltage switch has power turned OFF	 Verify that the sensor's red LED flashes with motion activity. If not, ensure any line voltage switches are in the ON position.
	occupancy detection scene set to OFF in error AND/OR	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF.
	daylight switching may be enabled in error	 If the load responds to the remote, follow the steps in this document to set the occupancy detection scene level
		 Follow the steps in this document ensure that daylight switching is disabled.
Lights will not turn ON from wallstation	occupancy detection scene set to OFF in error	 After a 1 minute power up period, verify that the sensor's red LED flashes with motion activity.
		 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF.
		• If the load turns ON with the remote, follow the steps in this document to set the occupancy detection scene level.

Troubleshooting Guide

Lights will not remain ON	occupancy sensitivity may be set to LO	• Verify that the sensor's red LED flashes with motion activity.
		 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF.
		 Using the programming remote (ISHH-01) push the "HI" button to ensure occupancy coverage area is maximized.
	daylight switching may be enabled in error	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF.
		 Follow the steps in this document ensure that daylight switching is disabled.
Lights will not turn OFF automatically	occupancy placement or sensitivity	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF.
		 Verify that the sensor's red LED flashes with motion activity and stops flashing with no motion.
		 If the LED flashes when motion is not occurring, ensure the sensor is not located within 4-6 feet of air vents.
		 If the LED is flashing when motion is not occurring, using the programming remote (ISHH-01) push the "LO" button to reduce occupancy coverage area.
	unoccupied scene set to ON in error	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF.
		 If the load turns ON with the remote, follow the steps in this document to set the unoccupied scene level.
Lights turn ON but remain at a dimmed level	0-10V output	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF and the light level can be raised and lowered.
		 If still not responsive, disconnect the 0-10V wires from the control module. If the lighting does not go to full bright check wiring for shorts.
		 Verify with a meter that at least 10VDC is present between the purple and gray disconnected driver leads.
		 If the lighting does go full bright when disconnected from the control module, check for polarity reversal on the 0-10V leads.
	daylight dimming is enabled where not appropriate	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF and the light level can be raised and lowered.
	AND/OR occupancy detection scene level set too low	 If the load turns ON and responds to the raise/lower commands, determine whether the fixture should dim with daylighting. If it should not, follow the steps in this document to disable daylight dimming and then set the occupancy detection scene level.
		 If the load should dim with daylighting, it may need recalibration. Follow the steps in this document to set the occupancy detection scene level.
Lights turn ON but remain at full bright level	0-10V output	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF and the light level can be raised and lowered.
		 If still not responsive, disconnect the 0-10V wires from the control module. Lighting should remain full bright.
		 Temporarily connect the driver's purple and gray wires together. Verify the lighting goes full dim.
		 Verify with a meter that at least 10VDC is present between the purple and gray disconnected driver leads.
		 If the lighting goes full bright again when the leads are separated after this test, check for polarity reversal on the 0-10V leads.
	daylight dimming is disabled in error AND/OR	 Using the programming remote (ISHH-01) ensure the relay can be turned ON/OFF and the light level can be raised and lowered.
	occupancy detection scene level set too high	• If the load turns ON and responds to the raise/lower commands, follow the steps in this document to ensure that daylight dimming is enabled and then set the occupancy detection scene level.

1.1				
	Lighting is ON but fixtures are at different light levels	daylight dimming is operating OR daylight dimming is enabled where not appropriate	•	Before making any adjustments, look at the natural light entering the space and the location of fixtures that are at dimmest levels. The different light levels may be the appropriate dimming response to natural daylight in the space. If response seems appropriate, the system is operating properly.
		AND/OR occupancy detection scene level set improperly	•	If response does not seem appropriate to daylit vs. non-daylit areas, determine which fixtures should dim with daylighting. If there are fixtures that should not daylight dim, follow the steps in this document to disable daylight dimming and set the occupancy detection scene level.
			•	If the fixtures should dim with daylighting, they may need recalibration. Follow the steps in this document to set the occupancy detection scene level.
			•	If the response still does not seem appropriate, fixtures may be too close to each other causing competing control loops. Follow the steps in this document to disable daylight dimming for strategic fixtures and set the occupancy detection scene level.
	How do I know if the sensor is working on power up		•	Turn the fixture circuit OFF and then ON. The light should start at a 100% light level and then lower to the daylight level if daylight dimming is enabled.
			•	During the power up sequence, the sensor's red LED should slow blink (ON for 2 seconds, OFF for 2 seconds) for a 1 minute period and then blink only upon motion detection.
			•	Using the programming remote (ISHH-01) press the relay ON/OFF button and RAISE/LOWER buttons to ensure the light fixture turns ON/OFF and dims properly.

Cooper Lighting Solutions 1121 Highway 74 South Peachtree City, GA 30269 www.cooperlighting.com

© 2020 Cooper Lighting Solutions All Rights Reserved Printed in USA Publication No. IL503033EN July 11, 2018 4:34 PM Cooper Lighting Solutions is a registered trademark.

All other trademarks are property of their respective owners.

