Ocelli Sense Command Control

Third Eye



Energy Saving Sensors

Save Energy Today for a Better Tomorrow



GREEN CITY

Human activities continue to have a massive impact on global warming. Almost all of the observed increase in temperature in the last 50 years has been due to an increase in the atmosphere of greenhouse gas concentration like Carbon dioxide (CO2) Methane and Ozone. The largest contributor to green house gases is the burning of fossil fuels (Coal, Oil, Natural gas etc). Currently about 75% of the power worldwide is generated using Fossil fuels. It is up to us to reduce CO2 emissions and slow down the effects of Global warming.

Lights have revolutionized the way we live, work, and play. Lighting accounts for anywhere between 11 to 38 percent of the average electricity bill. Therefore, it is important that we conserve electricity used for lighting. Power is wasted by having the area over illuminated during the day by designing to have enough light during the night or leaving the lights on when the area is unoccupied. Saving power can be accomplished by switching the lights On and Off automatically in response to the areas occupancy status. Further savings can be realized when such occupancy sensing is combined with daylight harvesting or dimming the lights during the day when natural light is available.

Motion Sensor History

The first motion detector burglar alarm was invented in the early 1950's by Samuel Bagno and is based on the principles of radar applied to ultrasonic waves, a frequency that humans cannot hear - the difference in the frequency of a moving object, like a train sounding louder as it gets closer. The problem was that false alarms were common.





Modern (PIR) Sensors

The term "Passive Infrared", or "PIR", refers to motion detectors used to detect people by sensing the thermal infrared radiation emitted by the human body. At the end of the sixties, alternatives to microwave and ultrasonic motion detectors were explored. PIR promised lower cost and fewer false alarms. In 1970 Herbert Berman invented the segmented mirror made from metallized plastic as an effective system for optical gain and the spatial modulation needed to generate a signal when people move across the field of view. A major breakthrough was achieved in 1979 with the commercial availability of the dual (or differential) pyroelectric sensor. Fresnel lenses were introduced first in the USA, driven by the search for simple alternatives to get around Berman's patent. It is good to remember, "Passive infrared sensors are passive and does not emit any radiation".



Occupancy Sensor (ON – Automatic; OFF - Automatic)

Occupancy sensors are devices that detect occupancy in a space by sensing the thermal radiation from humans. Occupancy sensors are used to control the load automatically, based on occupancy. Occupancy sensors can save up to 35% electricity used for lighting.

Daylight harvesting

Daylight harvesting is a technique used to optimize the amount of artificial light used in response to available natural light. It does this either by turning OFF the light or by dimming in response to available daylight. When daylight harvesting is used along with occupancy sensor it will further improve savings.

Sensor Cascade connection

Daylight dimmable sensors can be cascaded together to increase the load driving capacity or to provide area specific lighting based on local ambient lighting condition while still responding to occupancy. Only occupancy sensor can be cascaded. Sensors can be cascaded either in a hierarchical master-slave form or in a peer-peer form.

Switching controller

Switching controllers are used to turn the load ON and OFF based on the sensor decision.

Dimming controller

Dimming controllers are used to provide optimum artificial light in response to changing natural light by reducing the brightness of artificial light.

Ceiling Sensor

These sensors are mounted on the ceiling giving them an unobstructed view of the area. They usually have a 360° field of view and cover a large area depending on the height of installation. They are very efficient in applications where a large area needs to be controlled. These sensors are usually used in open offices where the furniture is not tall enough to obstruct the view of the sensor.

Wall Sensor

The sensors are usually mounted higher on the wall where it is not easily accessible to the consumer. They are usually installed in common areas to control lighting like apartment or hotel aisles, Public bathroom and others where they need to operate independently and are not easily accessible to tampering.

Socket Sensor

These sensors are mounted on the wall at the same height as the switches that are used to control a given area. They usually have a 180° field of view and are usually found in conference rooms or private offices and other application where the sensor has an unobstructed view of the area they covers (that means that there are no tall furniture that block the view).

Vacancy Sensor (ON – Manual; OFF - Automatic)

These are semi-automatic sensors; the sensors require to be turned on manually by the occupant, will stay on as long as there are occupants in its field of view, and will automatically turn off the lights when the area is vacant.

Three way sensors (ON – Manual/Automatic; OFF - Automatic)

Three way sensors are a combination of occupancy and vacancy sensors. The loads can be turned ON either automatically by occupancy detection or manually by means of an external switch. Turning off is always automatic based on a user settable time delay.



This setting controls the minimum amount of movement required for the sensor to detect whether a given area is occupied (human movement is used for detection) and turn ON the lights. Sensors are shipped with this setting set to the most sensitive position. The customer can manually change this setting on the sensor using a remote control unit.



Security

This mode is used to simulate human occupancy to a given area a lived in look. In this mode, when the ambient light sensor senses the light to be at or below a certain customer determined level (the sensor assumes that it is dusk), lights in the area are randomly turned On and OFF simulating human occupancy. This continues for three hours, simulating a lived in look. After three hours the sensor stays OFF through the night till the following evening wherein it repeats the random turning On and OFF of lights.



The Lux Level setting of the sensor controls the switching ON and OFF or dimming level of artificial lighting. The customer can manually change this setting on the sensor using a remote control unit.



This is the duration that the sensor maintains the lights (or any other load connected to it) in the ON condition after the last occupancy is detected. Sensors are shipped with this parameter set at 5 min. The customer can manually change this setting using a remote control from 30sec to 30min.



Partial On

In this mode the lights are never fully turned ON (100% of the light level) when the space is occupied. Instead the sensor turns ON the light to a preset level (which can be less 100% level). User can change the partial on level using a remote from 70% to 100%. There is no change in behavior when the space is not occupied. This feature is only applicable for dimmable sensors and when used in conjunction with a dimmable ballast.



Partial Off

In this mode the lights are never turned OFF completely (i.e 0%) when the space is no longer occupied. Instead the sensor dims the light to a preset level. User can change the partial OFF level using a remote control unit from 0% to 30%. There is no change in behavior when the space is occupied. This feature is only applicable for dimmable sensors and when used in conjunction with a dimmable ballast.(Note: Some luminaries may have difficulty in going below a certain dim level)





Presentation Mode

This feature is useful during presentations using a projector to temporarily override the ambient light sensor based brightness control. After the presentation is over and once the room is vacated as indicated by the time delay sensor, the sensor reverts back to normal mode and start controlling the light based on the ambient light sensor. This feature is only applicable for dimmable sensors and when used in conjunction with a dimmable ballast.



Burn-in helps to extend the overall lifetime of CFL or FTL bulbs and also improves the quality of light output. NEMA spec LSD 23-2010 recommends that the bulbs go through Burn-in, by operating at ballast's maximum light outputs for a minimum of 12 hours continuously without dimming. The Burn-in feature is available on all sensors but is disabled by default. This feature can only be activated using a remote control.



Vacancy sensors use the same technique as occupancy sensor to detect the occupancy. These class of sensors do not turn ON the load automatically. Load has to be turned ON manually but the sensors turn OFF the load automatically when the space no longer occupied.



The lifetime of a CFL/FTL lamp depends on how frequently the lamp is turned ON and OFF. The US energy star recommends that the CFL should be ON for minimum of 15 minutes each time it is turned on. Our sensors are designed to address this issue and maintains a minimum ON time of 15 minutes.



Three Way Mode

Three way sensors are a combination of occupancy and vacancy sensors. The load can be turned ON either automatically by occupancy detection or manually by means of an external switch. Turning OFF is always automatic upon vacancy as detected based on a user settable time delay. This mode is typically used in conjunction with two/three way switches in stairs.

It is very important to pay attention to the security and safety of the occupants due to failures in the sensors thereby not turning ON the light/load. If and when there is a failure in our sensor, the lights/loads are fully turned on, so that there are no safety concerns to the occupants



Fail Safe Mode



Cascade Operation

Daylight dimmable sensors can be cascaded together to increase the load driving capacity or to provide area specific lighting based on local ambient light condition while still responding to occupancy. Only occupancy sensor can be cascaded. Sensors can be cascaded either in a hierarchical master-slave form or in a peer-peer form.



This mode is used to provide on-demand lighting. User can select three different mode of the sensor. 'Always OFF' mode indicated by red color LED indication; 'Always ON' mode indicated by yellow color LED indication; 'Auto' mode indicated by Green color LED indication.



When a remote control is used to change any setting, the setting is automatically saved into the sensors permanent memory. This helps the sensor to retain the setting even after a power loss The setting can be overridden by entering the override mode on the remote control there by reverting back to hardware based settings



Factory Reset

This feature resets the settings that were set up using a remote controls back to the hardware/factory default value



IR remote Access

Sensors can be remotely controlled by an Infrared (IR) remote control. This enables better control of the sensor's parameters during installation. Sensor provides a visual cue to indicate the setting being changed and also value of the settings.



Visual Cue

Sensors provide visual cue during configuration of settings. The RGB LED light up in different colors depending on the current value of the setting being changed.



Lock / Unlock

All sensors are equipped with setting lock/unlock feature on the remote control. This feature can be used to prevent accidental changes to the sensor settings either by child or in an area where there are multiple sensors. To make any setting changes the sensor needs to be unlocked first. If the sensor is in a locked state, any attempts made to change the setting is not allowed and will be indicated by flashing bright red LED.



Coverage Test

This mode is used to check the motion sensing coverage of the motion sensors. In this mode, If the sensor detects a movement in its range, it will turn the load ON for a very short time (less than 10 second) indicating coverage. If the loads do not turn ON with motion it would mean that the sensor is out of range. By walking around the perimeter one can plot the sensor range using this mode





Load Maintenance Mode

Some of our sensors are equipped with a load maintenance switch. This enables the user to replace/maintain the load without turning OFF the power to the whole office or house.



Sleep Mode is used in the Bedroom. Some users don't like the Lights to be ON while sleeping. The user disables the remote LOCK function and Enables the Sleep Mode by pressing the SLEEP Button. The sensor turns ON the green LED indicating that the sleep mode is enabled. The artificial lights connected to sensor will be OFF for 8 hours. Ocelli sensors automatically reverts back to Normal operational mode, if no motion is detected for 2 hours or If 8 hours are completed since the SLEEP MODE was enabled.



This feature selects either a lux based (timer = 0) or timer (timer > 0) based mode for turning OFF of the light. Turning ON of the light is always lux based at Dusk. In lux based mode, the light will turn OFF at Dawn (based on the Lux setting). In timer based mode, the light will turn OFF after the set timer period. This feature is only applicable for Light Sensor.



Calibration

This feature is used to re-calibrate the sensor for a given installation or when the light is changed or light or sensor moved to a different location. The calibration may be needed if there is a frequent switching in the light. The sensor can be re-calibrated by pressing the button on the light sensor remote. One re-calibration is enabled the sensor will automatically turn ON and turn OFF the light and may last for about 2minutes. Once the calibration is complete, the sensor reverts back to normal operation. This feature is only applicable for Light Sensor



ODL

On Demand Lighting (ODL) is an advanced option of the light sensor to turn the light ON after the sensor has turned OFF the light in timer mode. In timer mode, on timer expiry the light will be turned OFF until the following Dusk. This feature temporarily overrides this behavior to turn the light on for a particular time interval for example for an unexpected guest visit etc. The temporary timer can be varied from 5 minutes (default) to a maximum of 8hrs by repeatedly pressing the remote button. This feature is only applicable for Light Sensor



Reset

In the timer based sensor, the light will turn OFF on expiry of the timer. Reset feature is used to reset this timer and start over again. This feature is only applicable for Light Sensor

Specifications

On - Off Sensors

Coverage Area

Ceiling Sensor : Upto 42 Sq.m (450Sq.ft) @ 2.4 m (8ft) Height Wall Sensor : Upto 23 m (75 ft) @ 2.1 m (6.8 ft) Height Socket Sensor : Upto 9.75 m (32 ft) @ 2.1 m (6.8 ft) Height HighBay Sensor : Upto 465 Sq.m (5000 sq.ft) @ 12 m (40 ft) Height Corridor sensor : Upto 28 m (92 ft) @ 2.1 m (6.8ft) Height

Time Delay : 30s-30 Mins Lux Level : 10-2000 Lux **Operating Voltage :** 85-265 VAC Frequency: 50/60 Hz Load : 1800 Watts (resistive) **Location** : Indoor

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Features	Occupancy & Light	Occupancy Only	Light Only	ThreeWay	Vacancy
Sensitivity	\bigcirc	\odot	\otimes	\odot	\bigcirc
Brightness	\odot	\otimes	\bigcirc	\bigcirc	\bigcirc
Time Delay	\odot	\bigcirc	\odot	\odot	\odot
Security	\bigcirc	\bigotimes	\bigcirc	\bigcirc	\bigcirc
Partial Off	\otimes	\otimes	\otimes	\otimes	\otimes
Partial On	\otimes	\bigotimes	\bigotimes	\bigotimes	\bigotimes
Presentation Mode	\otimes	(\times)	\otimes	(\times)	(\times)
Vacancy Mode	\bigotimes	\bigotimes	\bigotimes	(\times)	\odot
Threeway Mode	(\times)	(\times)	(\times)	\odot	(\times)
IR Remote Access	\odot	\bigcirc	\bigcirc	\bigcirc	\odot
Visual Cue	\odot	\odot	\bigcirc	\odot	\odot
Setting Storage	\odot	\bigcirc	\bigcirc	\bigcirc	\odot
Factory Reset	\odot	\odot	\odot	\odot	\odot
FailSafe Mode	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Load Maintenance	\otimes	(\times)	(\times)	(\times)	\otimes
Burn-IN	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
CFL	\bigcirc	\odot	\otimes	\bigcirc	\odot
Future Proof	\otimes	\bigotimes	\bigotimes	\bigotimes	\otimes
Cascade Operation	\otimes	$(\!$	(\otimes)	$(\!$	\otimes
On-Demand Mode	\odot	\odot	\bigcirc	\odot	\bigcirc
Coverage Test	\odot	\odot	\otimes	\odot	\odot
Lock /Unlock	\odot	\odot	\odot	\odot	⊘.

Specifications

Dimmable Sensors

Coverage Area

Ceiling Sensor : Upto 42 Sq.m (450Sq.ft) @ 2.4 m (8ft) H Wall Sensor : Upto 23 m (75 ft) @ 2.1 m (6.8 ft) Height Socket Sensor : Upto 9.75 m (32 ft) @ 2.1 m (6.8 ft) Height HighBay Sensor : Upto 465 Sq.m (5000 sq.ft) @ 12 m (40 ft) Height Corridor sensor : Upto 28 m (92 ft) @ 2.1 m (6.8ft) Height

Features	Occupancy & Light	Light Only	Cascade
Sensitivity	\odot	\otimes	\bigcirc
Brightness	\odot	\odot	\bigcirc
Time Delay	\odot	\odot	\bigcirc
Security	\odot	\odot	\bigcirc
Partial Off	\odot	\odot	\otimes
Partial On	\odot	\odot	\bigcirc
Presentation Mode	\odot	\odot	\otimes
Vacancy Mode	\otimes	\otimes	\otimes
Threeway Mode	\otimes	\otimes	\otimes
IR Remote Access	\odot	\odot	\bigcirc
Visual Cue	\odot	\odot	\bigcirc
Setting Storage	\odot	\odot	\bigcirc
Factory Reset	\odot	\odot	\bigcirc
FailSafe Mode	\odot	\odot	\bigcirc
Load Maintenance	\otimes	\otimes	\otimes
Burn-IN	\odot	\odot	\bigcirc
CFL	\odot	\otimes	\odot
Future Proof	\otimes	\otimes	\otimes
Cascade Operation	\otimes	\otimes	\odot
Lock/Unlock	\odot	\odot	\odot
On-Demand Mode	\odot	\bigcirc	\bigcirc
Coverage Test	\odot	\otimes	\bigcirc .

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Time Delay : 30s-30 Mins Lux Level : 10-2000 Lux **Operating Voltage :** 85-265 VAC Frequency: 50/60 Hz Load : 1800 Watts (resistive) **Location** : Indoor

Preferred Install Locations



Ceiling Sensor

Suitable for Offices, Corridors, Individual Cabins, Rest Rooms, Meeting Hall, Residences, etc...













Vacancy Sensor



ThreeWay Sensor

Suitable for Stairs, Hotels, Storage rooms, Conference rooms, Lounges, Bath rooms, etc...









Socket Sensor

Suitable for Corridors, Warehouses ,High bay spaces, Gymnasiums, Distribution Centers, etc...

Suitable for Lobbies, Waiting Rooms, Class rooms. Individual Cabins, Rest Rooms, Meeting Hall, etc...





Suitable for Corridors, Warehouses ,High bay spaces, Gymnasiums, Distribution Centers, etc...











Cascade Sensor

Suitable for open office space, auditorium, etc...





Corridor Sensor

Suitable for Corridors





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Suitable for Hotels, Storage rooms, Conference rooms, Lounges, Bath rooms, etc...

















Ceiling Sensor

Variants

IOCHCW-WR1 / IOFHCW-WR1 Occupancy and Light Sensor IVCHCW-WR1 / IVFHCW-WR1 Vacancy and Light Sensor ITCHCW-WR1 / ITFHCW-WR1 ThreeWay and Light Sensor INCHCW-WR1 / INFHCW-WR1 Occupancy Only Sensor ILCHCW-WR1 / ILFHCW-WR1 Light Only Sensor ICCHCW-WR1 Cascade and Light Sensor

Coverage Area

Installation Height : 2.4 m (8 ft) Coverage Area: Upto 42 Sq.m (450 Sq.ft)





Variants

IOWHCW-WR1 Occupancy and Light Sensor IVWHCW-WR1 Vacancy and Light Sensor ITWHCW-WR1 ThreeWay and Light Sensor ICWHCW-WR1 Cascade and Light Sensor INWHCW-WR1 Occupancy Only Sensor ILWHCW-WR1 Light Only Sensor

Coverage Area

Installation Height : 2.1 m (6.8 ft) Coverage : Upto 23 m (75 ft)



Mechanical Drawings







Mechanical Drawings



Note : Coverage diagram is not applicable for light sensor

Note : Coverage diagram is not applicable for light sensor

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Wall Sensor



SIDE VIEW:



Socket Sensor

Variants

IOSHCW-WR1 Occupancy and Light Sensor IVSHCW-WR1 Vacancy and Light Sensor ITSHCW-WR1 ThreeWay and Light Sensor ICSHCW-WR1 Cascade and Light Sensor INSHCW-WR1 Occupancy Only Sensor ILSHCW-WR1 Light Only Sensor

Coverage Area

Installation Height : 2.1 m (6.8 ft) Coverage : Upto 9.75 m (32 ft)





Variants

IOBHCW-WR1 Occupancy and Light Sensor IVBHCW-WR1 Vacancy and Light Sensor ITBHCW-WR1 ThreeWay and Light Sensor ICBHCW-WR1 Cascade and Light Sensor INBHCW-WR1 Occupancy Only Sensor

Coverage Area

Installation Height : 12 m (40 ft) Coverage Area: Upto 465 Sq.m (5000 Sq.ft)



Mechanical Drawings





Mechanical Drawings







HighBay Sensor



Corridor Sensor

Variants

IOOHCW-WR1 Occupancy and Light Sensor IVOHCW-WR1 Vacancy and Light Sensor ITOHCW-WR1 ThreeWay and Light Sensor ICOHCW-WR1 Cascade and Light Sensor INOHCW-WR1 Occupancy Only Sensor



Switch Remote



Coverage Area

Installation Height : 2.1 m (6.8 ft) Coverage : Upto 28 m (92 ft)



Mechanical Drawings









Features



TIME DELAY

DLY+ : To increase the Time Delay DLY- : To decrease the Time Delay

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BRIGHTNESS

LUX+ : To increase the Lux level LUX- : To decrease the Lux level



SENSITIVITY

SNS+ : To increase the Senitivity level SNS- : To decrease the Senitivity level



FACTORY RESET

FR+ENTER : Factory settings FR+EXIT : Remote Settings



LOCK/UNLOCK

LOCK+ENTER : To Lock the Remote LOCK+EXIT : To UnLock the Remote

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SECURITY

SEC+ENTER : To Enable the Security Mode SEC+EXIT : To Disable the Security Mode

ON DEMAND MODE



Always OFF : RED color LED is ON Always ON : GREEN color LED is ON Auto : YELLOW color LED is ON



SLEEP

SLEEP ENABLE : GREEN color LED is ON SLEEP DISABLE : RED color LED is ON



COVERAGE TEST

CVT ENABLE : GREEN color LED is ON CVT DISABLE : RED color LED is ON



CFL

CFL ON : GREEN color LED is ON CFL OFF : RED color LED is ON

Light Remote



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Dim Remote



Features



MODE

Selects lux or programmable timer based mode of turning OFF of the light. ON is always lux based. LUX MODE: RED color LED is ON TIMER MODE : All other colors except RED



BRIGHTNESS

LUX+ : To increase the Lux level LUX- : To decrease the Lux level



ODL

Temporarily turns on the light in timer mode after it turned off. Duration can be changed from 5 mins to 8 hrs by repeatedly pressing ODL button.



CALIBRATION

Calibrates the light sensor for a given environment. Press the CAL button once (as indicated by GREEN color LED is ON) to enter calibration mode. Auto exit after 2 mins

RESET



Resets the timer in timer based mode. Press once (as indicated by GREEN color LED is ON) to reset the timer.

Note : Enter and Exit buttons use only for FR, LOCK & SEC Modes. A, B & C buttons are not valid



FACTORY RESET

FR+ENTER : Factory settings FR+EXIT : Remote Settings



LOCK/UNLOCK

LOCK+ENTER : To Lock the Remote LOCK+EXIT : To UnLock the Remote

SEC+ENTER : To Enable the Security Mode

SECURITY



SEC+EXIT : To Disable the Security Mode

ON- DEMAND MODE



Always OFF : RED color LED is ON Always ON : GREEN color LED is ON Auto : YELLOW color LED is ON

Features





Level can be controlled from 70% to 100% by repeatedly pressing the button

PRESENTATION MODE

Press this button to enable (as indicated by GREEN color LED is ON) Auto exit after timer delay + 30 sec

PARTIAL OFF



Level can be controlled from 0% to 30% by repeatedly pressing the button



TIME DELAY

BRIGHTNESS

DLY+ : To increase the Time Delay DLY- : To decrease the Time Delay



LUX+ : To increase the Lux level

LUX- : To decrease the Lux level

SENSITIVITY



SNS+ : To increase the Senitivity level SNS-: To decrease the Senitivity level



ADAPTIVE TIME DELAY

ADPD ON: GREEN color LEd is ON ADPD OFF: RED color LED is ON

BURN IN



BRN TIMER : 3hrs to 12 hrs (lemon to cyan LED indication) BRN DISABLE: RED color LED Indication



FACTORY RESET

FR+ENTER : Factory settings FR+EXIT : Remote Settings



LOCK/UNLOCK

LOCK+ENTER : To Lock the Remote LOCK+EXIT : To UnLock the Remote



SECURITY

SEC+ENTER : To Enable the Security Mode SEC+EXIT : To Disable the Security Mode

ON-DEMAND MODE



Always OFF : RED color LED is ON Always ON : GREEN color LED is ON Auto : YELLOW color LED is ON



SLEEP

SLEEP ENABLE: GREEN color LED is ON SLEEP DISABLE : RED color LED is ON



COVERAGE TEST

CVT ENABLE : GREEN color LED is ON CVT DISABLE : RED color LED is ON



CFL

CFL ON : GREEN color LED is ON CFL OFF : RED color LED is ON

Note : Enter and Exit buttons use only for FR, LOCK & SEC Modes. A button is not valid

Wiring Diagrams



Type : Switching (ON/OFF)

Type : Master - Slave*





Type : Peer - Peer*



*Note : Master-Slave and Peer-Peer connections are applicable only for dimmable sensors.

---- LOAD

Type : Dimmable



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AUX IN NEUTRAL

NEUTRAL

- AUX IN

Ocelle Sense Command Control

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