FAQ:

c-Max™
LIGHTING CONTROLS






GENERAL QUESTIONS

Q1: What is c-Max?

c-Max is MaxLite's lighting controls product offering. It features a patent pending plug and play design that makes it easy to add Luminaire Level Lighting Controls (LLLC) across a broad set of indoor and outdoor product families.

Q2: How does c-Max work?

Sensors pair with MaxLite controls-ready (CR) luminaires. Controls-ready luminaires come pre-installed with a USB-C receptable. Sensors, sold separately, plug into the luminaire receptacle for easy installation in the field. A separate remote allows for easy commissioning of sensors. Buy a CR luminaire and buy accessories such as a sensor and a remote separately, and you are all set.

Q3: What are the benefits of c-Max?

Installing controls can be a daunting task. Controls are often complex in nature and can be expensive to commission. c-Max addresses these pain points by providing simplicity, versatility, and future readiness to controls.

1. Its patent pending plug and play interface along with the low voltage sensors makes it a great DIY field installation. An electrician is not required to install c-Max controls saving on installation time and labor. It takes less than 30 seconds to install the sensors!

2. c-Max sensor nodes are affordable control solutions that come with many features packed in a small form factor. With a few technologies and form factors to choose from based on application, it features high trim, bi-level dimming through motion sensor and daylight harvesting.

3. One major benefit of considering c-Max is that it makes MaxLite CR luminaires future ready to add controls at a later stage, or upgrade to more advanced sensor technologies in the future. We have designed the system such that luminaires don't have to be removed from the ceiling.

Q4: Will c-Max have any kind of networking capabilities?

At launch, MaxLite will offer c-Max Basic Controls that use IR technology for communicating via remote with the low voltage sensors. This is not a networked solution, and allows the user the flexibility to individually address one luminaire at a time. MaxLite is currently developing a network solution that it plans to launch in the near future that will allow for more functionalities such as grouping, scheduling, and setting scenes via a wireless mesh network. Stay tuned for our future network offering!

Eventually, c-Max will become a two tier control solution – Basic and Network. It will be easy to switch from Basic controls to Network controls – all the customer needs to do is choose the correct Network Node (wireless nodes) that will enable the system to be networkable and controllable through an App. No need to change luminaires!

Q5: How much energy can I save with c-Max?

It will depend on a lot of factors including type of application, sensor programmed settings, and a combination of control strategies. According to studies published by Lawrance Berkley National Labs, controls can generate energy savings of 24-38% beyond LED conversion. The majority of such savings are achieved via motion sensing, daylight harvesting and high trim. These three energy-savings features are already part of the c-Max sensors!

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PRODUCT COMPATIBILITY

Q6: Can I use c-Max sensors with non-MaxLite luminaires?

Not at this point. c-Max needs to have the receptacle installed in the luminaire. Unless the luminaire is pre-configured with the control receptacle, it won't work. MaxLite may offer this as an OEM solution in the future. However, at launch, c-Max will work with MaxLite CR luminaires only.

Q7: Which MaxLite products will come with c-Max?

We have made c-Max versatile across many of our indoor and outdoor CR products. As we plan to launch many new products in 2021 and beyond, we will begin to offer CR versions of the luminaires. During Q2 2021, we expect to have panels, troffers, troffer retrofit kits, linear strips, wraps and vapor tight product families as c-Max compatible Indoor fixtures. Similarly, for the Outdoor segment, we expect wall packs, area lights and more outdoor products under product development to have c-Max functionality built in it. We are also working on incorporating c-Max with MaxLite's Type C TLED portfolio. Stay tuned for more CR product news!

Q8: Why is there no c-Max offering with Linear High Bays?

The current high bay model does not accommodate installing the control receptacle. We are actively developing an accessory that will soon make it possible to adopt c-Max into the BLHE line. We will continue to offer the current MS version until the c-Max sensor/accessory for the BLHE is ready.

Q9: What happens to the MS version?

With c-Max, you buy a CR luminaire and order the sensors separately. We do not intend to offer MS with c-Max. We will offer the MS version with the BLHE until we devise a new c-Max solution for high bays.

Q10: What types of sensors will come with c-Max?

There are a variety of sensors to choose from depending on your application. Choose between a Microwave, PIR or Photocell-only sensor in the rectangular form factor (CN-RTXXX)and choose between a PIR and Photocell-only option in the round form factor (CN-RDXXX). Please refer to the c-Max brochure for more details and ordering information

Q11: Will c-Max come with standalone sensors?

In the future we will continue to work on expanding the portfolio to offer stand-alone sensors that are not part of the CR fixtures. We believe the value of c-Max is more powerful with CR luminaires.

Q12: What is the difference between the microwave and PIR sensors? How should I choose?

The simple answer is, it depends on the application. Microwave sensors typically are more sensitive, can detect small motion and offer a broader detection range compared to PIR sensors. Refer to the individual sensor data-sheets to understand the mounting height and detection range recommendations. Microwave signals can travel through non-metal walls but PIR signals don't. A PIR sensor needs a direct line of sight to detect motion (typically major movement motion) while a microwave sensor does not. PIR sensors are therefore not recommended if sensors are either enclosed in the luminaire or positioned behind the lens. For recessed indoor CR products such as panels, troffers and troffer retrofits, sensors are installed facing the room side, and therefore we recommend using the rectangular PIR sensor (CN-RTPSW). For behind-the-lens applications, as is the case with linear strips, wraps and vapor tights, we recommend using the rectangular microwave sensor (CN-RTMST). It is important to choose the correct sensors for the application. Microwave sensors should not be used in an application that has other interfering frequencies present. Datacenters and broadcast stations often carry other high frequencies that may interfere with microwave sensors, and it is advisable to use PIR sensors in such application settings. MaxLite recommends doing a test in such special cases before large project installations. Please refer to the c-Max brochure for product compatibility.

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INSTALLATION AND COMMISSIONING

Q13: How do I install and commission Basic controls?

Installing c-Max sensors to the CR ready fixtures is very easy. You will need a M2.5 Allen key (3/32 SAE equivalent) and a M1.5 Allen key (5/32 SAE equivalent) to install the rectangular and round sensors respectively. Please see the how-to videos at www.maxlite.com/cmax for more information. The commissioning for the Basic control sensors is done via a remote control (CN-REMOTE) that is ordered separately. Please note that the photocell-only sensors do not need a remote to commission. The photocell is designed to turn an outdoor fixture on/off based on the lux/fc settings. Refer to the datasheets of these sensors.

Q14: Can I use daylight harvesting with c-Max?

Yes, there are two ways to achieve daylight harvesting – using photocell either as ON/OFF or in a continuous adjustment mode (CAM). First, the photocell functionality in the sensor allows the user to turn the luminaire ON/OFF based on certain lux/foot candle values. If the lux value threshold is met, the sensor will turn the luminaire either ON or OFF based on the settings. A good example of this application is the Dusk to Dawn feature typically seen in the outdoor category. For indoor recessed luminaires (panels, troffers and troffer retrofit kits), we offer the continuous adjustment mode (CAM) setting to perform daylight harvesting using the CN-RTPSW sensor. When used in a typical office application to leverage the ambient level light, including daylight, this PIR sensor will adjust the luminaire light on a continuous basis to maintain the desired light level. Please note that CAM works only when motion sensing is enabled (sensitivity set to either LOW or HIGH). CAM is designed to work only with CN-RTPSW for certain indoor applications. When using sensors for behind the lens applications, we don't suggest using CAM, as the reflected light from the luminaire will interfere with the daylight adjustment. We are working on external PIR solutions for indoor linear products to enable daylight harvesting in the future.

Q15: What makes it easy to commission basic controls?

We have made the remote layout intuitive for quick commissioning. We offer 4 memory banks for the users to save sensor settings. Once the sensor settings are configured and saved to the memory bank, it only takes a point and click to commission other luminaires. The luminaire will blink a few times when you send configured settings from the remote to the sensors to indicate settings have been applied.

Q16: What is the range of the c-Max motion sensor? Can the motion sensor or photocell be turned off? What are the factory default settings for c-Max?

There is a difference between commissioning range and sensor detection range. Refer to the sensor and remote datasheets for these technical details. Unless you are in a manual override dimming mode or daylight harvesting using CAM, the sensor is looking for a trigger mechanism to adjust light levels. If you turn Off motion sensing (Sensitivity = OFF), the photocell will automatically turn ON. However if motion sensing is enabled (Sensitivity = LOW/HIGH), user can decide to either enable photocell (Low/Medium/High) ON or turn it OFF. Sensors can be set to factory default by pressing the RESET button on the remote. Please refer to the CN-REMOTE datasheet for sensor default values.

Q17: What happens to the sensor settings in case of a power outage? Do I need to reprogram the sensors?

No, you don't! Once properly commissioned, the settings are saved to the flash memory of the microcontroller embedded in the sensor. In the case of a power outage, the sensor retains its prior settings after the power is restored.

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Q18: Can I group luminaires with c-Max Basic controls sensors?

Yes, the luminaires will need to be daisy chained with low voltage dimming wires in order to create a group. In this wired grouping scenario, there can be only one parent fixture with the c-Max node, and the rest of the child fixtures will be daisy chained to the parent fixture without any sensors. Essentially, you can only have one sensor per group that is daisy chained. Please note that the parent fixture needs to be a CR fixture. Depending upon the product family, the child fixtures could be either the MaxLite CR model, or a non-controls-ready fixture of the same family. Please refer to the installation manuals of the CR luminaires for wiring instructions. MaxLite is currently developing a wireless network solution that will provide ultimate flexibility in terms of grouping fixtures without needing to daisy chain low voltage dimming wires.

Q19: Is there a way to know what settings are saved on the sensor?

No. There is only a one-way communication between the remote and sensors. During commissioning, the user can save the sensor settings to one of the 4 memory banks (M1 M2, M3 or M4) and send those to the sensors. The remote control essentially can only send commands, but not receive the sensor status or its settings. In the future, the c-Max wireless network solution will allow the user to know the status of the sensors and its settings through an app.

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