FAQ:

c-Max LIGHTING CONTROLS

NETWORK 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 Control (LLLC) solution across a broad set of indoor and outdoor product families. It is a two-tier controls offering allowing the customer to choose between c-Max Basic and c-Max Network depending on budget and application needs.

Q2: How does c-Max work?

Sensors pair with Maxlite's controls ready (CR) luminaries. Controls ready luminaries come pre-installed with a USB-C receptable. Sensors, sold separately, plug into the luminaire receptacle for easy installation in the field. Buy a CR ready luminaire and appropriate controls nodes separately and you are all set. c-Max Basic gets commissioned via Remote control and c-Max Network is easily commissioned via c-Max App.

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: Which c-Max controls solution offers networking capabilities and what features comes with it?

c-Max Network uses Bluetooth wireless technology to individually address a single or group of luminaries. Features listed below

- Luminaire Level Lighting Control (LLLC)
- Bluetooth-enabled Networking of Luminaires and Devices
- High-end Trim
- Zoning
  - Add and control up to 100 devices per zone
  - Add unlimited zones to scale for bigger installation
- Individual Addressability
  - Address individual or multiple luminaires
  - Create unlimited groups (combination of sensor or network nodes) within a zone
- Control Persistence - Sensors integrated with BLE, occupancy and daylight sensing
- Multi-level Dimming, Daylight Harvesting and Occupancy controls
- Manual ON/OFF, Automatic ON/OFF and Automatic partial ON/OFF control capability
- Personal control via App or wireless Wall Switch

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- Scene control
  - Create and link 3 scenes per wall switch, and up to 127 scenes per zone
- Time clock Scheduling for individual lights, groups or scenes
- Secure commissioning with c-Max App (128-bit data encryption)
  - Up to 100ft node-to-node and 50ft node-to- mobile device during commissioning
- Control features help meet code compliance

As we intent to add more features in the future, please refer to the website for latest information on the controls offerings.

Features	c-Max Basic	c-Max Network
Occupancy Sensing	Microwave/Passive Infrared	Passive Infrared
Multi-level Dimming	Bi-Level with pre-defined setpoints	Tri-Level with Linkage feature and ability to define various setpoints
Daylight Harvesting	Continuous Adjustment Mode and ON/OFF Photocell	Continuous Adjustment Mode and ON/OFF Photocell
High Trim	50%/75%/100% (Preset)	50-100% (1% increment)
Communication Protocol	Infrared, (Commissioning) No node-to-node communication	Bluetooth Mesh up to 100ft node-to-node and 50ft node-to-mobile device (Commissioning)
Commissioning	Remote (IR)	c-Max App (IOS and Android)
Zone	N/A	Unlimited (up to 100 devices per zone)
Group	N/A	Wireless grouping of nodes, sensors, and switches
Scenes	N/A	Up to 127 Scenes per zone
Schedule	N/A	Time based schedule for lights, groups, and scenes

Q5: How much energy can you 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 a recognized national lab, controls can generate energy savings of 24-38% beyond LED conversion. 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 & COMMISSIONING

Q6: Which MaxLite products will work with c-Max Controls?

We have made c-Max versatile across many of our indoor and outdoor controls ready products. We have already introduced 8 product families including panels, troffers, troffer retrofit kits, linear strips, wraps and vapor tight, Open Face Wall pack and AR series product families as c-Max compatible fixtures. We will further expand c-Max to Highbay, Cut off Wallpack and the new M-Series outdoor product during late Q3/Q4 2021. Future generation products under product development will also 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 news! Please refer to the brochure for the luminaire compatibility chart.

Q7: What happens to the MS version (previously factory installed motion sensor models)?

With c-Max, customer buys a CR luminaire and orders the sensors separately. We will phase out the MS versions of our products as we ramp down existing inventory

Q8: What types of devices come with c-Max Network?

There are a variety of devices including sensors, network nodes and powerpacks to choose from depending on the application. Please refer to the c-Max Network brochure for more details.

Q9: How do I install and commission with c-Max Network?

Installing sensors is very easy. You will need a M2.5 Allen wrench (3/32 SAE equivalent) and a M1.5 allen wrench (5/32 SAE equivalent) to install the rectangular and round sensors respectively. Please see the how to videos for more information. c-Max Network is commissioned via c-Max App. Refer to the commissioning guide for more information. **https://www.maxlite.com/cmax**

Q10: Why is there no microwave sensor option with c-Max Network?

We find that PIR is a time-tested mature solution and meets most application requirements. Also due to the small form factor of sensors, it is difficult to colocate microwave and Bluetooth electronics in close proximity and prevent any interference issues. Therefore c-Max Network sensors are based on passive infrared technology to detect occupancy or vacancy.

Q11: How should I think about choosing between various devices for a job installation with c-Max Network?

Please refer to the brochure for device and luminaire compatibility chart and the commissioning guide for examples on how to pair different devices for various applications. c-Max installation can be optimized to reduce cost by correctly combining sensors with network nodes. MaxLite layout team is another great resource who can help customers optimize their controls layout.

Q12: How does c-Max Network work with non CR (controls ready) luminaires e.g Downlights or Non-MaxLite fixtures?

Non CR luminaires or non-MaxLite luminaires can be made c-Max compatible by adding the NPP-300W powerpack. Customer will need to use NPP-300W to control the luminaires either as a group or individual light point. Luminaires can be grouped (wired) up to a 300W and paired with 1 NPP-300W device. Individual control will require 1 NPP-300W per luminaire. The luminaires need to have 0-10V dimming.

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Q13: Can I use c-Max sensors with non-MaxLite luminaries?
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. As we grow the c-Max offering there is a possibility we offer this as an OEM solution in the future. Currently, c-Max will work with MaxLite CR ready luminaries only.

Q14: What is the range of c-Max Network?
100 feet node to node Bluetooth range and 50 feet radius between node and mobile device.

Q15: 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 sensor settings are saved to the flash memory of the microcontroller. In the case of a power outrage the sensor retains its prior settings, and we expect the sensor to work correctly once power is restored.

Q16: What happens to the schedules in case of a power outage? Do I need to re-program?
c-Max sensors and nodes do not have an astronomical clock to keep track of time. In the event of a power outage, schedules will not be maintained as the sensors won't know the current time. An easy way to fix this issue is to open the app again and sync with the network. This will allow scheduled timers to function correctly. In the future MaxLite will add an RTC device to the network that will automatically sync the real time with the network in case of a power outage.

Q17: What happens if I lose the QR code?
c-Max Network is a local wireless solution. It is recommended to save the QR code to recall settings for any future reconfiguration needs. MaxLite recommends that once a site is commissioned, the installer or the facilities manager saves the encrypted QR code in a safe place. If the QR codes is lost for any reason, there is no way to recover the configuration settings to make any adjustments to the saved settings.

Q18: Will c-Max Network sensors and nodes work with inverters or generators?
Not currently. Customer can always purchase battery backup solutions from MaxLite for egress applications. MaxLite will add UL924 device that will enable compatibility with inverters and generators in the future.

Q19: Is the c-Max Network DLC listed?
All CR luminaires that are c-Max compatible are DLC listed (solid state lighting). Check the individual luminaire datasheet for the actual listing information. c-Max Network is currently in the process of getting DLC Network Lighting controls qualified.

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