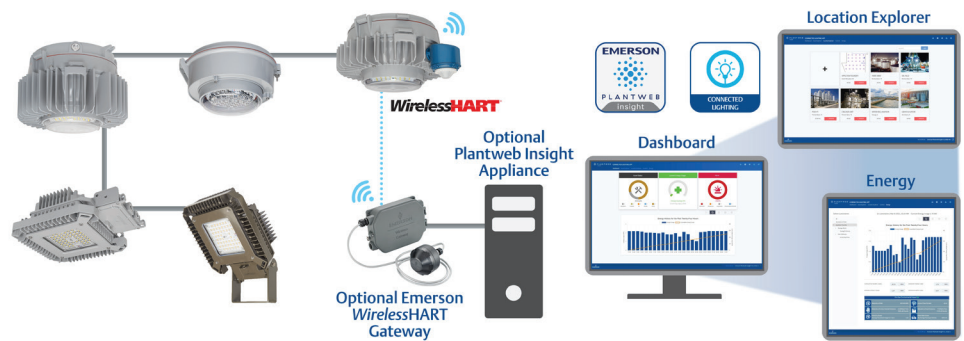


Optimize Lighting Operations with Appleton™ LED Luminaires

Group Lighting Controls | FAQs

Facilities can reduce energy consumption and maintenance needs while enhancing safety in harsh industrial and hazardous locations with Appleton Group Lighting Controls by Emerson. Appleton Mercmaster™ Connect LED Luminaire controls the lumen output of Appleton dimmable LED luminaires, allowing plant operators to gain additional control and operational insight into their facility's lighting.



Q: What is the difference between an Appleton “connected luminaire” and an Appleton “dimmable luminaire”?

A: An Appleton connected luminaire is a smart light that communicates over WirelessHART technology. This luminaire has an integrated sensor with occupancy or daylight harvesting capabilities, can report sensor state and automatically dim lumen output. It acts as a “controller” when Appleton LED lighting luminaires with dimming capabilities are wired to it through dimming cables, creating a “controlled” group.

An Appleton dimmable luminaire is a standard LED lighting luminaire with an electrical 0-10V dimming interface. This luminaire acts as a part of the “controlled” group when the dimming interface is wired to a Connected Appleton LED Luminaire.

Q: What is Group Lighting Controls?

A: Group Lighting Controls allow the control of multiple luminaires over a distance of 60 meters (200 feet) with Mercmaster™ Connect LED Luminaire integrated dimming controller wired to the dimming leads (via designated terminal block terminations or wire nuts/connectors).

Q: Who can benefit from Group Lighting Controls or Appleton Connected Smart Lighting solutions?

A: Any customer who wants to reduce power consumption and/or add intelligent controls of the lighting within a facility or within an area of a facility can benefit. Any customer who already has a WirelessHART network installed in their facility who is looking to strengthen their network can benefit from adding Appleton Connected Lighting. Any customer who is looking for ways to capture, document and report Carbon Emission reductions across a facility can also benefit.

Q: How does Group Lighting Controls work? What are the system capacities and constraints?

A: To enable Group Lighting Controls, the installer may daisy chain up to 10 dimming capable luminaires on the same circuit breaker by wiring the 0-10V dimming leads to a Connected Appleton luminaire, such as the Appleton Mercmaster Connect LED Luminaire. The Connected Appleton Luminaire sensors will determine its lumen output intensity percentage. That same percentage lumen level will be sent over the 0-10V dimming ports to each dimmable LED luminaire.

Q: What are the benefits of Group Lighting Controls?

A: Group Lighting Controls enable the Mercmaster Connect LED Luminaires advanced capabilities to extend daylight harvesting (adjustable lumen output via dimming depending on the level of daylight detected by the sensor), motion sensing (up to 12 meters [40 feet]) or scheduling features (up to 4 times period per day) with the group of lights. Instead of 24/7 operation, lighting output can now be reduced through controls for the location to extend product life.

If the customer has, or chooses to invest in, the Plantweb Insight™ Connected Lighting Application, and a WirelessHart network/gateway, they can benefit from reporting on energy usage and other features and controls from that application. Annual ESG reporting is available with a total cost of ownership reduction of up to 80% when compared to legacy non-LED lighting, depending on the usage and configuration.

Q: What is the different between a system with and one without the Plantweb Insight Connected Lighting Application?

A: Without the Plantweb Insight Connected Lighting Application, the installer will commission the Mercmaster Connect LED Luminaire via an Emerson AMS Trex™ Device Communicator to determine mode (Daylight harvesting, scheduling for specific hours, etc). The programming of the Mercmaster Connect LED Luminaire will apply to any dimmable lights that are wired via dimming leads to the Mercmaster Connect LED Luminaire. To change the configuration or mode, an installer must manually connect to the Mercmaster Connect LED Luminaire with the Trex and make changes.

Customers with the Emerson Plantweb Insight Connected Lighting Application and that have added the Mercmaster Connect LED Luminaire to a WirelessHart network, will be able to control, change, monitor and report out on the Mercmaster Connect LED Luminaire in their facilities. Customers can change the configuration mode (ie. schedule times, daylight harvesting, etc) via the App.

Q: Can Appleton Mercmaster Connect LED Luminaires and Appleton dimmable luminaires retrofit to existing hoods or brackets?

A: Yes, the Mercmaster Connect LED Luminaire utilizes/retrofits to the same hoods as Appleton Mercmaster LED Low profile, Mercmaster LED Generation 3 and Mercmaster III HID. Retrofit adapters for Crouse-Hinds Champ VMV, Mercmaster II, and Killark Certilite V mounting hoods are available. Retrofit capabilities for other Appleton LED Luminaires can be determined in the respective product's catalog page.

Q: Which Emerson products will work with Group Lighting Controls?

A: Any Appleton LED luminaire with accessible 0-10V dimming leads is compatible.

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Q: Which Emerson luminaires are available with dimming capabilities?

A: The Appleton Mercmaster LED Low Profile, Baymaster™ LED, and Areamaster™ Generation 2 LED are readily available and manufactured with dimming standard. By July 2024, additional Appleton LED Series luminaires will be available with Dimming as standard and/or optional.

Q: How many dimmable LED luminaires can be connected to a Mercmaster Connect?

A: Up to 10 LED Luminaires can be daisy chained together using 0-10V dimming port.

Q: How far apart can the luminaires be spaced?

A: The luminaires can be installed over a maximum of 60 meters (200 feet) dimming cable range.

Q: Can I monitor the performance and state of the dimmable 0-10V LED luminaires?

A: No, there is only an analog control signal connecting the Mercmaster Connect LED Luminaire to dimmable LEDs. There is no data feedback. However, if you have the Plantweb Insight Connected Lighting Application, the App will calculate estimated energy savings for luminaires wired to a Mercmaster Connect LED Luminaire (as long as they have been captured in the App).

Q: Are there any control issues after installing different lumen outputs for dimmable LED luminaires?

A: No, the 0-10V dimming control signals each LED driver to change to a percentage of lumen output, not a precise output. For example, when signal sets as 50%, a 5500 lumen LED Luminaire and a 17500 LED Luminaire will have different lumen outputs. Care should be taken to install the appropriate lumen output for the installation location.

Q: Do I need to pull additional cable thru the conduit to enable group dimming control?

A: Yes, retrofit installations typically only have three conductors coming to each luminaire. Dimming requires five conductors: Line, Neutral, Ground, Dim+ and Dim-.

Q: What happens if the dimming wires are interrupted?

A: The LED luminaires will turn on to maximum brightness if there is no dimming signal detected.

Q: The Appleton Mercmaster Connect LED Luminaire is a WirelessHART enabled luminaire. Does this system require a WirelessHART gateway?

A: No, a WirelessHART gateway is not required for operation. Mercmaster Connect LED Luminaires can run in a standalone mode, motion sensing mode, or daylight harvesting mode. This mode can be set on the workbench using Emerson's AMS TREX or AMS Device Manager software.

Q: What happens if Mercmaster Connect LED Luminaire loses its connection to the WirelessHART gateway? Is there a fail safe mode?

A: Daylight harvesting and scheduling functionality do not need a WirelessHART network and will work as programmed. In motion sensing mode, Mercmaster Connect LED Luminaire and the group of attached dimmable luminaires will turn on to maximum brightness while the network is down. Plantweb Insight requires the WirelessHart network to function and its reporting functionality will turn off.

Q: Can I monitor the long term energy consumption of my lighting?

A: With an Emerson Plantweb Insight Connected Lighting Application Subscription, long term energy consumption trends of lighting can be analyzed. The number and wattage of each attached dimmable LED can be entered to its Mercmaster Connect LED Luminaire. The energy consumption for each group will be recorded and incorporated in the entire lighting system energy report with ESG analytics.

Q: How do I monitor and change how the Group Lighting operates after installation?

A: If using Plantweb Insight, the Connected Lighting application analyzes the operating state of the connected luminaire for maintenance alerts. After installation, the user can change the configuration and operating controls for the Mercmaster Connect LED Luminaire and the controlled dimmable luminaires remotely and within the application. Without Plantweb Insight, the customer must manually connect to the Appleton connected luminaire with the AMS TREX device and make changes. An additional option would be to use Emerson AMS software to communicate to the connected LED Luminaire over the network.

Q: Can other manufacturers dimmable luminaires be connected to a Mercmaster Connect LED Luminaire by hard wiring the 0-10V dimming leads?

A: Only Appleton dimmable LED luminaires by Emerson have been fully evaluated for use with Group Lighting Controls. Third party lighting with 0-10V dimming should be compatible but may operate differently than Appleton dimmable LED luminaires. Care should be taken to ensure certifications and operating parameters match Appleton dimmable LED luminaires.

Q: What are the motion sensing capabilities of the Mercmaster Connect LED Luminaire that will be inherited by the group of lights?

A: In motion sensing mode, the group of lights will detect motion up to a height of 6 meters (20 feet) (Mercmaster Connect LED Luminaire L5-5500 lumens or L9 - 9500 lumens), and up to a height of 12 meters (40 feet) (Mercmaster Connect H6 - 17500 lumens). The maximum detection area is two times the mounting height.

Q: What data is tracked in the one year environmental impact report?

A: The environmental impact report tracks the reduction of kWh, reduction of Carbon Dioxide Emissions, the Electricity saved, the Acres of Trees planted, the reduction of Coal Emissions, and the Reduction in Miles driven. A graph of the Cumulative Energy used vs periodic energy used is also provided.

Q: Can Appleton provide Energy savings estimation calculations?

A: Yes, Appleton can provide a proposed layout with control schemes, and clarify what the resulting average power consumption per hour and day is versus an HID installation.

Q: How do I specify a Group Lighting Control system?

A: Contact your local Appleton Sales Representative to schedule a design consultation. Our experts will walk through your facility, evaluate the system requirements, and set up a call with our applications team.

Q: How do I commission a Group Lighting Control system?

A: See Appleton resources online including commissioning guides and instruction manuals at appleton.emerson.com or contact the Appleton Tech center at 1.800.621.1506.

Contact your local Appleton Sales Representative to learn more about Connected Lighting and Group Lighting Controls, or visit us online at www.masteringled.com.