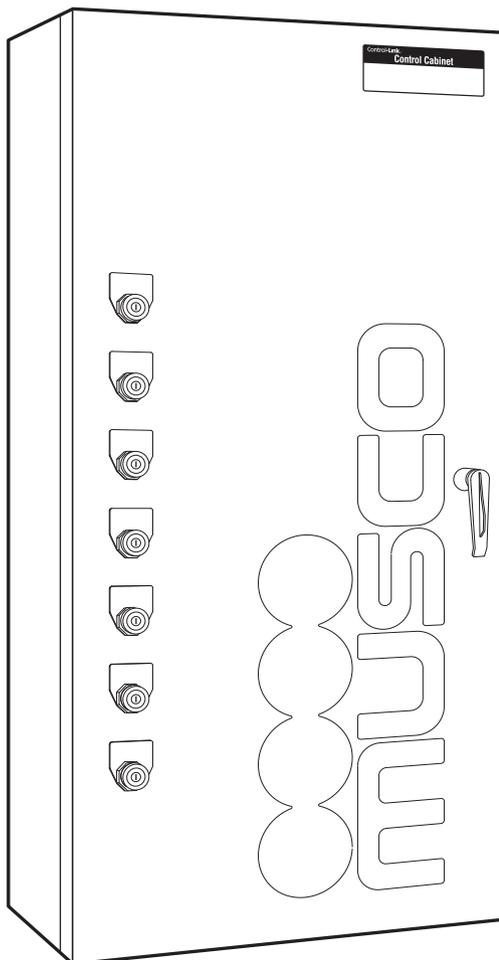


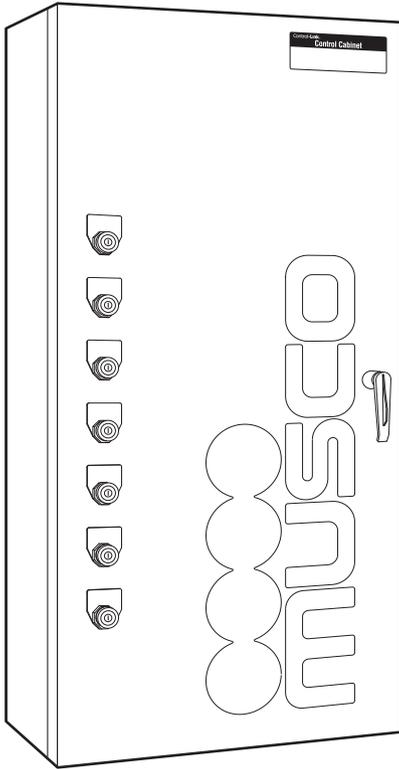
# Installation Instructions: **Control-Link® Control System**



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## Before You Begin

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### Safety Information

#### Electrical Safety Guidelines

Use extreme caution near overhead power lines or underground utilities. Observe all safety precautions for high-voltage equipment. Only qualified personnel may perform wiring. Follow all applicable building and electrical codes.

#### General Safety Guidelines

Follow proper safety procedures during installation. Installers must wear appropriate personal protective equipment, including eye protection.

Locate all underground utilities before digging.

All tools and equipment Musco supplies are designed for a specific use as described in these instructions. Do not use them in any other manner. Do not alter structural members in any way, such as bending, welding, or drilling, without prior authorization from Musco.

### About These Instructions

These instructions detail basic installation procedures for the Control-Link® control system. They are not a comprehensive guide to all possible situations. Direct any questions to Musco at +1-800-825-6020 or call your local representative.

Throughout this manual, note these important symbols:

- |  |  |   |   |
|--|--|---|---|
|    | The safety alert symbol alerts you of situations that require care and caution to avoid serious personal injury. |    | The go-to arrow tells you where to find further instructions for special situations or optional features. |
|  | The stop and check symbol signals you to stop and verify conditions before proceeding.                           |  | The tip symbol points out advice that makes installation easier.  |
|  | The contact Musco symbol appears in special situations where you may need to call Musco for further information. |  | The recycle symbol identifies recyclable materials.   |

## Before You Begin

### Electrical System Requirements

Only a qualified electrician may perform electrical work. Follow all applicable code requirements. Ensure your electrician reviews the following information before beginning installation.

- Ensure supply wiring is rated for 90 °C.
- A transformer may be required to supply control power. See *Control Power Consumption* table in *Control System Summary*.
- The control system requires power at all times for manual lighting control scheduling,. Only switch off power for maintenance. Supply a breaker lock-on device.

### Control System Summary

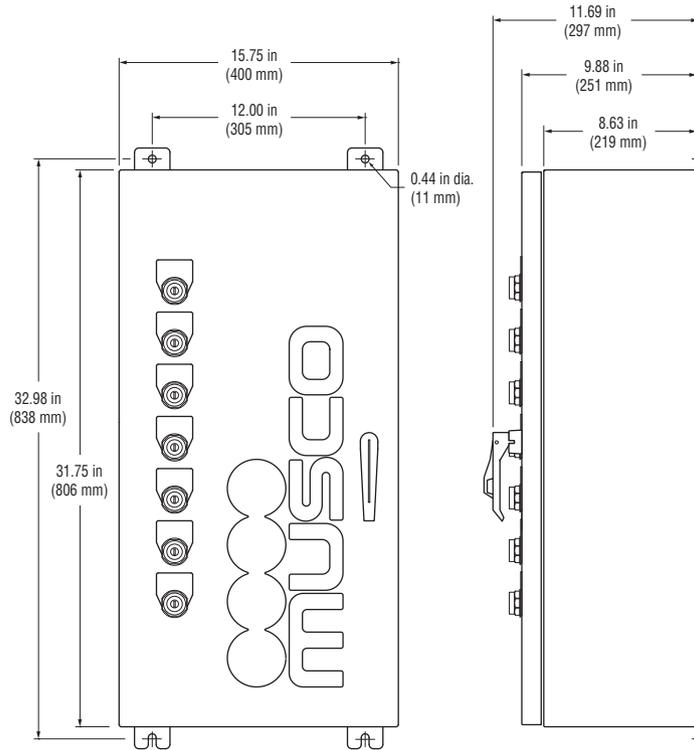
Musco supplies a *Control System Summary* for every project. This document is necessary for system design and pre-installation planning. It contains project-specific details you need for installation. Here are the contents:

- Project information
  - Project details
  - Contact information
  - References to documents such as lighting design scan
  - Voltage, frequency, and phase
  - Control voltage
- Materials checklist
  - A quick reference of everything you supply for the project
- Equipment listing
  - Cabinets
  - Switches
- Important installation notes
- Control system diagram
  - Cabinet layout
  - Wire runs and conduit details
- Switching schedule
  - Fields and lighting zones
- Control power consumption
  - Control voltage and phase requirements
  - Volt-amp loading of control system



## Before You Begin

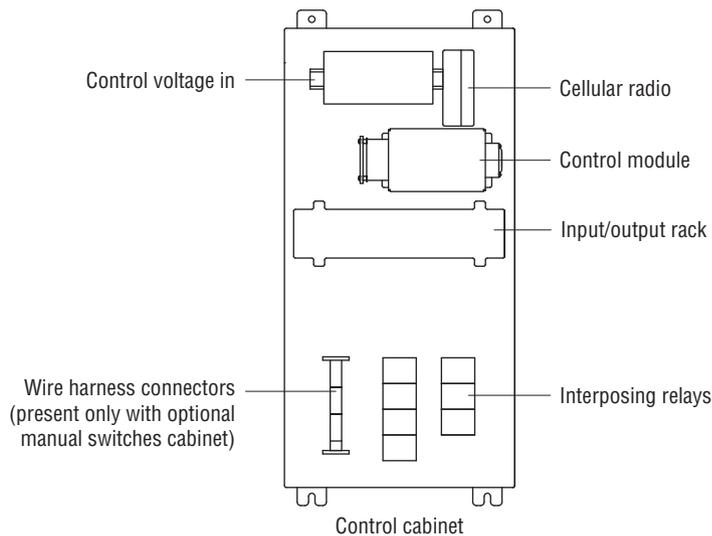
### Cabinet Dimensions



### Component Matching and Labeling

Musco labels all equipment to make installation easy. Components, cabinets, wiring, and connectors are all clearly marked with location, function, or any information needed for proper installation.

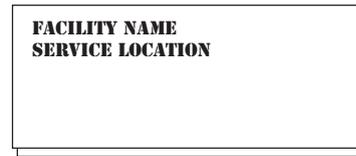
### Electrical Components Labeling



## Before You Begin

### Location Stenciling

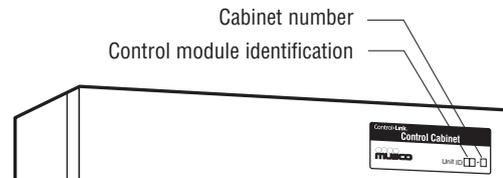
Each enclosure is custom fabricated for a specific location in your facility. To ensure installation at the correct location, we stencil the top of each cabinet with the facility name and electrical service.



Top view of cabinet

### Cabinet Labeling

A label in the upper right corner of the door identifies each cabinet. This label gives the control module ID and cabinet sequence. See *Control System Summary* for a complete list of all supplied equipment.



## Installation Procedure



### Warning Shock hazard

Disconnect power from distribution panel before opening. Take measures to ensure power remains disconnected until all installation steps are completed.

**1**

Mount cabinets in desired locations.

*Note: If you are installing optional manual switches cabinet, you may locate it up to 300 ft away (75 m with 2.5 mm<sup>2</sup> wire) but not farther.*

**2**

Cut entryways. Run conduit and wireway as needed for all cabinets.



Refer to *Control System Summary* for specific conduit runs needed in your project.

**3**

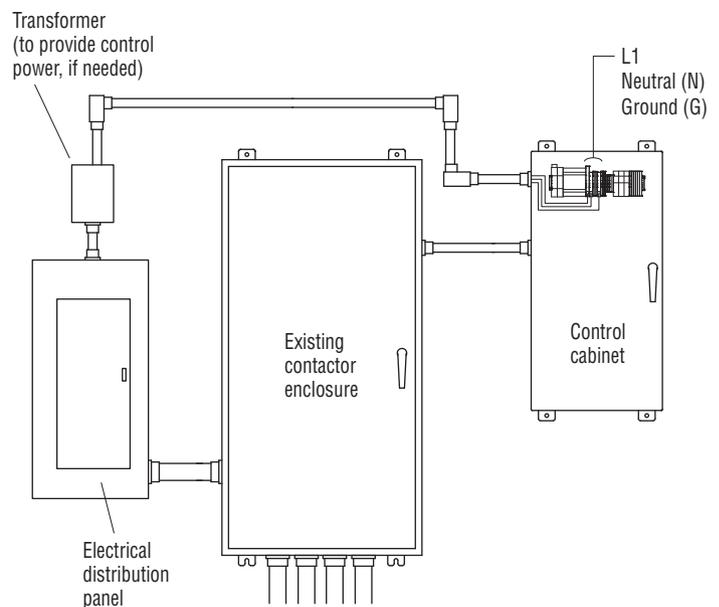
Install dedicated 20 amp circuit breaker in distribution panel to supply control circuit power. Install transformer if needed. See *Control System Summary* for information on breaker and transformer sizing.

**4**

Install lock-on device to control power circuit breaker. Apply provided label *Leave Breaker On Unless Performing Maintenance* to panel beside breaker.

**5**

Run control circuit power wires to control cabinet. Land on terminals provided (L1, N, G).



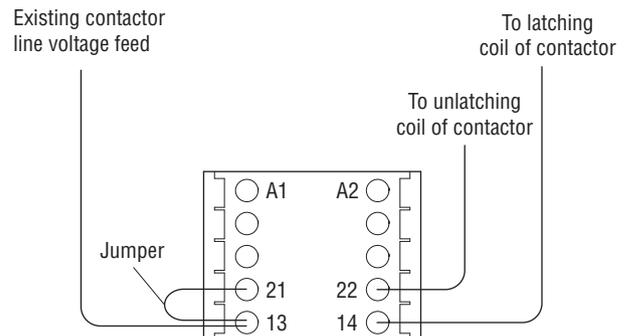
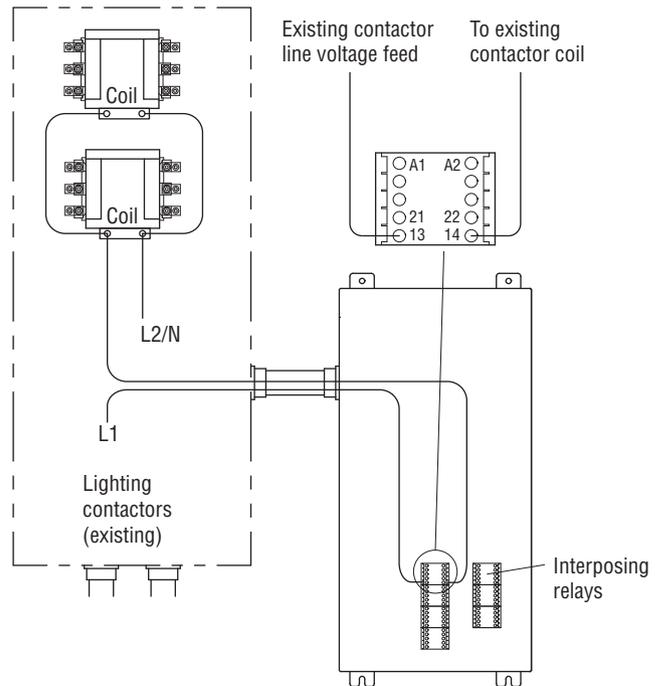
## Installation Procedure

- 6** Run two 12 AWG (4 mm<sup>2</sup>) wires for each zone to contactor cabinet. Label each pair of wires with zone number.
-  Consult *Control System Summary for Switching Schedule* table. Interposing relays are numbered 1 – 4 (left, top to bottom) and 5 – 7 (right, top to bottom) corresponding to zone.
- 7** In control cabinet, connect each pair of wires to terminals 13 and 14 on interposing relays.
- 8** In contactor cabinet, wire interposing relays in series with line voltage feed to contactor coil. Do not switch neutral leg of contactor feed.

*Note: Do not feed contactor coils using control circuit power from control cabinet. Contactor voltage spikes may damage control circuitry. Interposing relays isolate control circuit.*

-  If you have electrically held contactors skip step 9.

- 9** For mechanically held contactors, install a jumper wire between contacts 13 and 21 on interposing relay. Wire contact 22 to unlatching coil of contactor.





## Notes

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## Notes

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United States Patents: 7209958, 7778635. U.S. patent pending [Pat\_040A] Control-Link® is a registered trademark of Musco Corporation in the US. Control-Link Central™ is a trademark of Musco Corporation.