# Electrical Contractor Responsibilities & Prerequisites

If we attend site on your request and find the prerequisites have not been completed commissioning cannot be carried out and **you will be charged** for the necessary additional visit once site is ready for programming.

All circuits need to be connected and tested by Electrician.

## Outputs & Inputs

☐ All electrical connections to the output units have been made and tested to match the IEL GAs, it is the electrical contractor's responsibility to wire outputs in accordance with IEL supplied documentation, extra charges may occur when GAs are not followed

☐ Power outlets are present in the DB room

☐ 230V feed to the output units has gone through a surge protector

☐ All output units have been installed on din-rail in a suitable housing

☐ All cables have been terminated at an input device. Extra charges may occur where cable shorts are found due to incorrect terminations, fault finding time will be charged

☐ Supply all fixings and mountings for input devices. A recessed or wall mounted box for touchscreens (if required/quoted) to be supplied by IEL

## DALI

☐ All electrical connections to the DALI units have been made and tested to match the current IEL mark-ups, it is the electrical contractor's responsibility to wire outputs in accordance with IEL supplied documentation, extra charges may occur when mark-ups are not followed

☐ Cabling and terminations have been performed according to local wiring regulations

☐ ALL Lamps turn ON when power applied to the circuit

☐ Lamp burn-in completed before dimming (if required), refer to lamp manufacturer

☐ 300m max cable distance per DALI line (1x DALI line per room controller / Application controller)

☐ With power on lighting circuit, Electrical Contractor must ensure DALI lines are voltage free prior to commissioning

☐ Voltage on DALI line - no more than a 2V difference between the highest and lowest measured voltage

☐ 235mA max DC power allowed per DALI line (1x DALI line per room controller / Application controller)

☐ 1.5mm minimum cross section, twin, double insulated cable

☐ No more than 63 devices are connected on the DALI line (1x DALI line per room controller / Application controller)

For further information please see https://www.intelligentenvironments.co.nz/all-latest-trends/dali-rules/

## Pre-requisites for the lighting controllers

☐ A data run from each controller to a data outlet/switch is required (no looping)

☐ Terminations for data to be done and plugged into switch before we commission the lighting

☐ 1x static IP address required per controller, also 3 spare for commissioning

☐ 1x gateway assigned

☐ Ports open (see below)

## Network requirements

For optimal security all communication between cloud infrastructure is performed on a secure TLS socket. Each connection uses an ephemeral port and is always an outbound connection.

The sites network must also be synchronised with an NTP server for the TLS handshake to complete and secure the connection. When commissioning, devices receive network configurations by default via a DHCP server. It is also recommended that the network enables ICMP types 0, 3 and 8 to allow for network diagnostics and discovery of control systems. The following table shows the required ports that must be enabled to use the sites internet connection for communication with the cloud infrastructure.

| Service | Type | Port | Protocol | Network access | Application Layer |
|---|---|---|---|---|---|
| Api Server | Commissioning | 8901 | TCP | Outbound | MNCP 2.0, TLS 1.2 PKI |
| Api Server | Commissioning | 8902 | TCP | Outbound | HTTP/2, TLS 1.2 PKI |
| C2C MNCP | Controller | 5110 | TCP/UDP | Internal | MNCP 2.0 & TLS 1.2 PSK |
| Device Upgrade | Controller | 5112 & 6396 | TCP | Outbound | MNCP 2.0 |
| Cloud MNCP | Controller | 5113 | TCP | Outbound | MNCP 2.0 & TLS 1.2 PKI |
| API | Controller | 5108 | UDP | Internal | Third Party Interface |

**Typical Lighting Controls (Client Network)**

Cloud

Firewall
(Ports required to open)

Internal – 5108, 5110

Outbound – 5112, 5113, 6396, 8901, 8902

Managed Switch
(Lighting VLAN)

Application / Room
Lighting Controllers

(DHCP or Static IP
Address provided
by client)

Application / Room
Lighting Controllers

(DHCP or Static IP
Address provided
by client)

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