IMS

IMS INSTALLER REFRENCE GUIDE

IMS Lighting Controls

ILLUMINATION MANAGEMENT SYSTEM

NICOR®

NICORLIGHTING.COM/**SOLUTIONS/IMS**

NICOR IMS 3.0 Lighting Control System: Installer Reference Guide

01 · INTRODUCTION

This field guide provides installers with need-to-know information for installing and wiring the IMS 3.0 lighting control system. This document supplements the IMS 3.0 product specifications and installation sheets and does not replace those documents.

This guide assumes the following:

- IMS 3.0 system is being installed
- DALI-2 and Low voltage control wiring
- That the IMS 3.0 networks are installed per the lighting control layouts

What this guide includes:

- Key terminology
- DALI-2 bus and power considerations
- Wiring requirements and topology guidelines
- Troubleshooting tips
- What *not* to do

IMS 3.0 DALI controller cabinet

02 · SYSTEM OVERVIEW — IMS 3.0

IMS (Illumination Management System) is a DALI-2–based lighting control system for commercial and industrial applications. It provides switching, dimming, sensors, zones, scenes, and scheduling through a web interface hosted on the controller (no internet required).

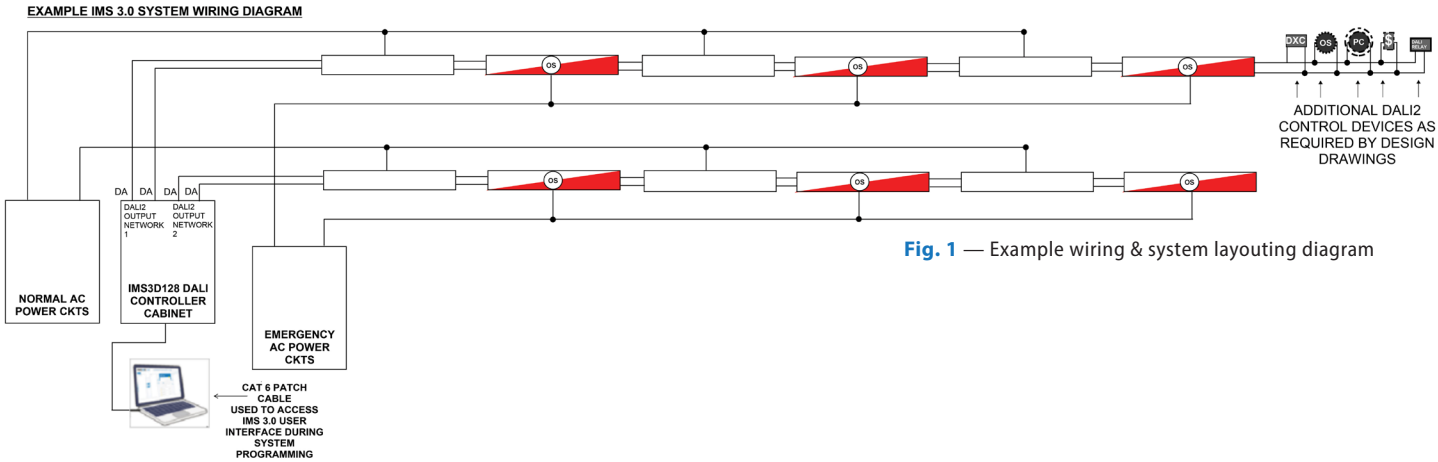


Fig. 1 — Example wiring & system layouting diagram

DALI-2 | DALI stands for Digital Addressable Lighting Interface and is a two-wire, low-voltage digital control protocol defined by IEC 62386. DALI-2 allows individual device addressing, luminaire level or group level control, and scenes.

03 · DALI-2 BUS AND WIRING

DALI-2 Bus Considerations (Per Network)

215 mA maximum bus current	**300 m** (985 ft) maximum cable length	**64** control gear (luminaires/drivers)	**64** control devices (sensors, switches, etc)

Exceeding limits can cause:

- Intermittent communication
- Missing devices
- System instability
- Bus failure

Wiring Requirements:

Use 18/2 CL3P cable for DALI bus

- Bus is polarity free
- Maximum length: 300 m (985 ft)
- Free topology is allowed (daisy chain, star, mixed)

Do not create loops on the DALI-2 bus. This can cause bus faults, communication issues, and system-wide failures.

Although a free and mixed topology is permitted, it is recommended to keep the connections as simple as possible. Complex branching will leave more room for error and complicated troubleshooting.

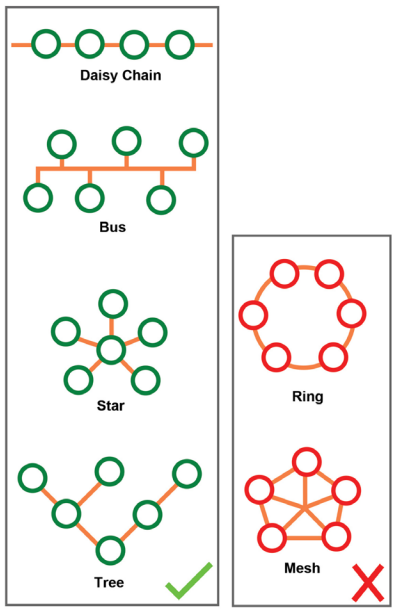


Fig. 2 — Approved topologies (daisy chain, bus, star, tree) vs. prohibited (ring, mesh)

NICOR control drawings are designed within these limits.Do not deviate from specified networks on layouts.

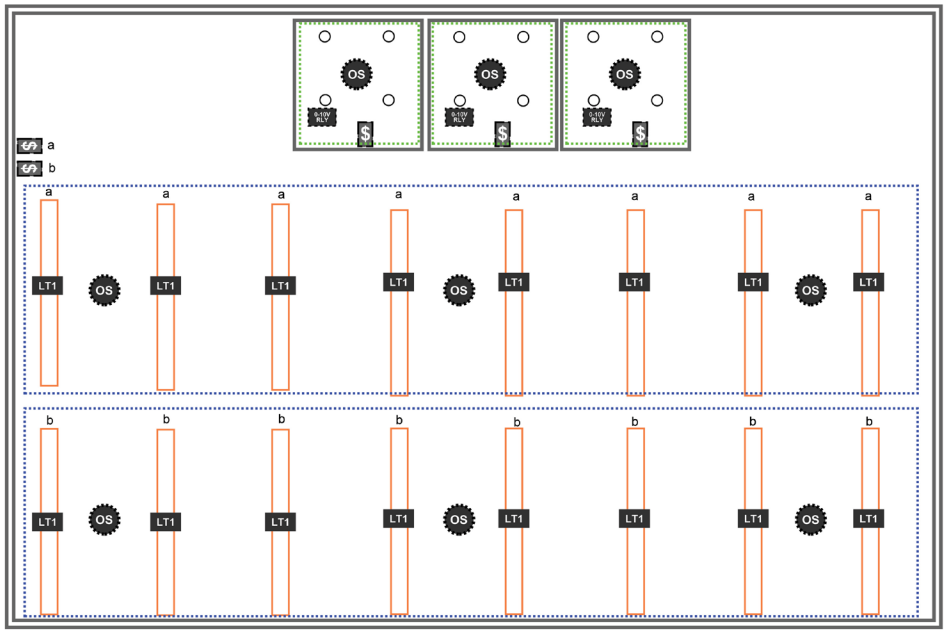


Fig. 3 — Lighting control layout: networks as designed on NICOR control drawings

04 · DEVICE POWER CONSUMPTION

Each DALI network is limited to 215 mA total current draw. If adding or replacing devices in the field, verify total current draw before installation. Exceeding the 215 mA limit may result in:

- Intermittent communication
- Missing devices
- Network instability

Power consumption has been accounted for in the NICOR controls drawings, deviating from the specified controls networks may lead to exceeding the allotted 215 mA.

Typical Device Consumption:

DALI-2 Enabled Fixtures
1.85 mA

DALI-2 Enabled Fixtures w/ Integrated sensors
7.85 mA

IMS3D0-10VRLY
3.5 mA

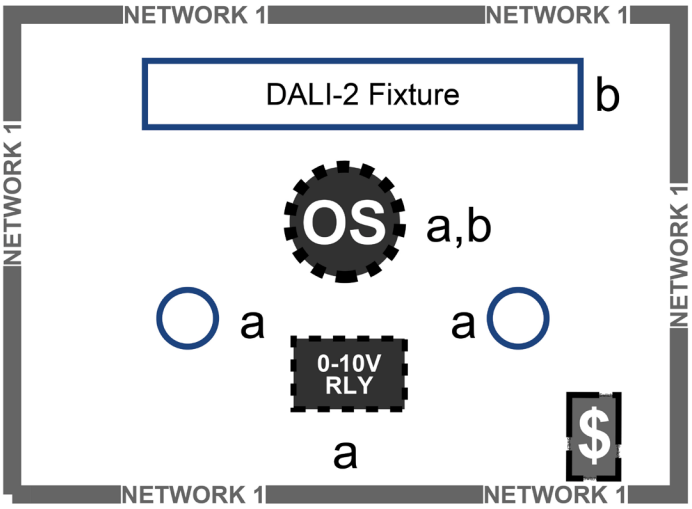
IMS3DRLY
5 mA

IMS3PIR (DT, #M)
6 mA

IMS3SWDS
4 mA

IMS3DXC
6 mA

Network Power Calculation Example



Device	DALI Load (mA)	QTY	Total DALI Load (mA)
IMSPIR	6	1	6
IMS3D0-10RLY	3.5	1	3.5
DALI-2 Fixture	1.85	1	1.85
IMS3SWDS	4	1	4
Total			**15.35**

05 · TROUBLESHOOTING

Start with these checks before troubleshooting further:

- Verify DALI bus voltage (14-16 VDC)
- Check for bus shorts
- Confirm the network is within the device and current limits

Note: Issues that improve when devices are disconnected typically indicate a bus overload or excessive cable length.

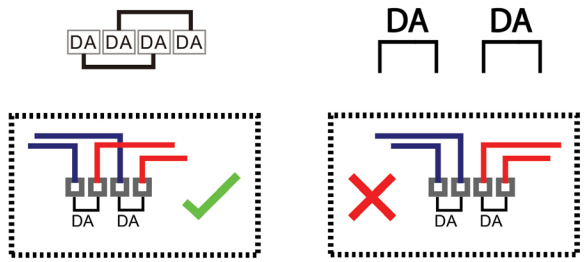
Symptom	Possible Cause	Recommended Action
Devices missing during identification	• Device missing short address • Device not connected to DALI bus • Bus short • Bus Overload	• Verify 14-16 VDC at device • Check resistance between bus conductors to detect bus shorts • Run "Address new devices" • Confirm device is properly wired to the DALI bus • Replace device if non-responsive
Lights not responding	• Fixture not connected to DALI bus • Fixture not assigned to a zone • Addressing issue	• Verify bus voltage at the fixture • Send Broadcast On/Off command to confirm fixture response • Identify fixture DALI address • Assign fixture to correct zone
Zone state mismatches	• Direct lighting command sent to lights/groups	• Cycle zone states using UI or commissioned control device
Network not responding	• Bus short • Bus overload • Wiring loop • Control bus crash • Fault Codes on DALI module or PLC Controller present (see chart in part 7)	• Check LED Indicators on PLC Controller and DALI Modules against Diagnostic Panel and LED Indicator Chart shown on page 7 to ensure the PLC controler and DALI modules are functioning properly. Noting any error codes that might be present. •  • Test for wiring loops and remove if present • Test for shorts on DALI bus • Power cycle controller • Perform "Soft Reset" in System Configuration menu
Intermittent or random device response	• Loose wiring connection • Bus length exceeds 300 m (985 ft) • Total bus current near or exceeding 215 mA	• Verify wiring connections are secure and properly terminated • Confirm network is installed per the lighting control layout • Measure DALI bus length and reduce if necessary • Verify total bus current is withing limits. Reduce load on the network (temporarily disconnect devices at the end of the line to test stability) • Verify total bus current is within limits

06 · INSTALLATION DO'S AND DONT'S

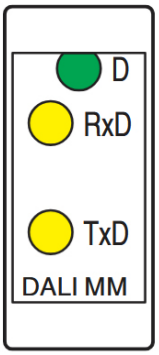
DO	DON'T
Follow NICOR control network layouts	Deviate from the specified control network layouts Mix devices across networks
Keep wiring topology simple	Create loops in the DALI bus
Leave a short service loop on DALI bus cable run	Leave unnecessarily large service loops on DALI bus cable run
Label DALI networks clearly	Connect DALI bus to mains power
Ensure DALI wires are landed correctly on each device, see wiring instructions	Leave any loose DALI bus connections
Verify no shorts exist on the network	
Perform continuity and resistance checks before energizing	
Verify 14-16 VDC at the end of the DALI runs	
Stay within the network limits: • 215 mA per network • 300 m (985 ft) max cable length • 64 control gear (luminaires/ drivers) • 64 control devices (sensors, switches, etc)	Exceed network limits: • 215 mA per DALI-2 network • 300 m (985 ft) maximum cable length • 64 control gear (luminaires/ drivers) • 64 control devices (sensors, switches, etc)

WARNING

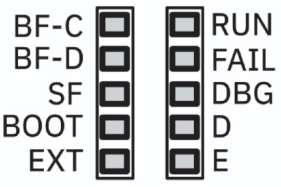
Terminal pairs marked with brackets are internally connected. Connecting both DALI bus wires to terminals within the same bracketed pair will cause a short circuit and DALI communication failure. Always connect the DALI bus wires to terminals in separate bracketed pairs. Refer to the wiring example below.



07 · DIAGNOSTIC PANEL COLORS AND MEANINGS



DALI Module		
Designation	**Color**	**Meaning**
D	Green	DALI Module functioning normally
D	Red	DALI Module error
RxD	Yellow/Flash-ing	Terminal is receiving data from the DALI bus



Controller				
Designation	**Meaning**	**Color**	**State**	**Description**
BF-C	PROFINET Controller Status (Unused)			
BF-D	PROFINET device Status	Red	Flashing	Discoverable by updating software
SF	PROFINET Group Status (Unused)			
RUN	Controller Status	Green	On	Controller is on and running program
RUN	Controller Status	Green	Flashing	Controller is on but in STOP state and no program is run-ning
FAIL	Controller Error indicator	Red	On	An error has occurred in the application program
FAIL	Controller Error Indicator	Red	Flashing	A system watchdog error has occurred
DBG	Debug mode	Yellow	On	System is in debug mode
BOOT	Firmware status	Red	On	Firmware is faulty
BOOT	Firmware status	Red	Flashing	Firmware is being loaded
D	Axioline status (Unused)		On	
E	Axioline error (Unused)		On	
EXT	Left alignment modules (Unused)	xx	Flashing	

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