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TECHNICAL DATA SHEET

Sensor Node 3

VX.Y, 07/03/2024

Sensor Node 3 (SN3), the third-generation sensor node in the Organic Response range, delivers reduced size and cost while featuring advanced occupancy and daylight sensing. SN3 is the first Organic Response node designed with connectivity at its core. SN3 communicates with – and is powered by – the luminaire driver over a 2 wire DALI interface[1], reducing component count, wiring complexity and integration cost. For communication external to the luminaire, the SN3 employs a dual layer communication architecture. Organic Response proprietary IR messaging is used for proven real time control between neighboring nodes, while an industrial grade low energy RF mesh network is used for communication via a gateway to Building Management Systems (BMS) and/or the Cloud.

Figure 1 - Sensor Node 3

[1] Designed for operation with Philips SR, OSRAM Dexal and Tridonic Powered DALI drivers

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OVERVIEW

Sensor Nodes and their communications form the foundation of the Distributed Intelligence which lies at the heart of the Organic Response System. Each Sensor Node has a motion detector, ambient light sensor, infrared transceiver, and an RF transceiver. Ideally (and typically) Sensor Nodes are integrated into each luminaire at the point of manufacture. Sensor Nodes control the light output of their associated luminaire using a DALI two wire connection to the luminaire Driver. Light output is based on a combination of information the Sensor Node collects from its environment, and information it receives from neighboring Sensor Nodes, Wall Switches, smartphones, or other devices connected via the OR IoT Gateway. Sensor Nodes have numerous configurable parameters, including, but not limited to:

- Max Light Level
- Personality
- Dwell Time
- Daylight Dimming
- Scenes
- Zones

Further information on the configuration and use of these parameters can be found in the User Guide 2.0 at the Organic Response website www.organicresponse.com.

MOTION SENSOR

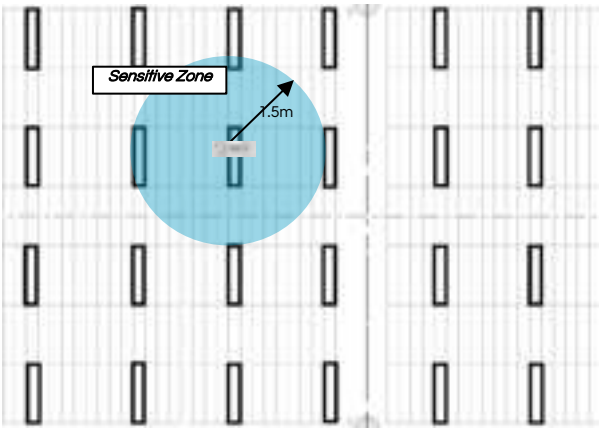

Figure 2 - Detection Range of a single Sensor Node imposed over a Typical RCP (1.5m circular radius, 2.7m luminaire height)

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KEEPING THE OIC CONTIGUOUS

Organic Response Sensor Nodes communicate with each other wirelessly to form a smart sensor network which we call the *Occupancy Information Cloud (OIC)* ™. The system relies on peer-to-peer communication between neighboring Sensor Nodes to maintain the integrity of the OIC and allow the light fittings to operate as a system. For this reason, nodes must be installed with the spacing indicated below:

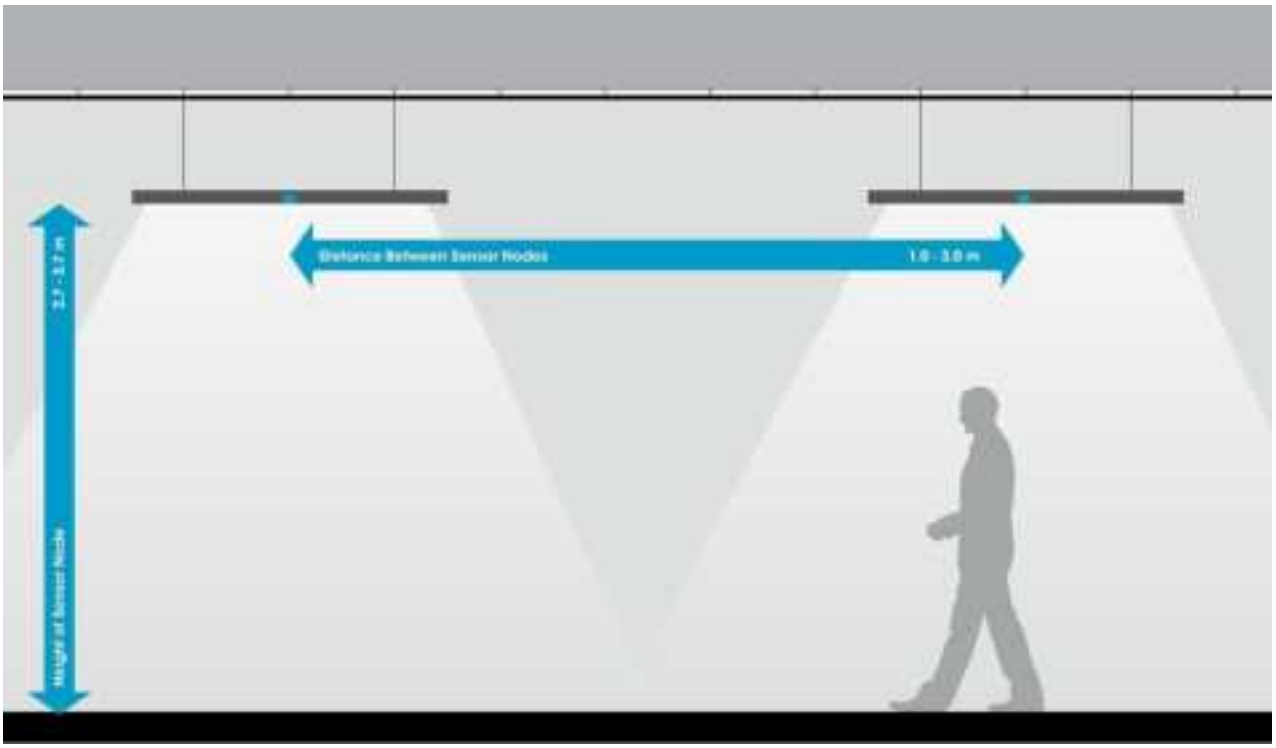

Figure 3: Recommended mounting height and neighbour spacing.

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TECHNICAL DATA	PART #: 448-000304 SENSOR NODE 3 WHITE PART #: 448-000374 SENSOR NODE 3 BLACK
DIMENSIONS	H: 28.35mm x L: 62mm x W: 22mm
CUT-OUT DIMENSIONS	L: 57.75mm +/- 0.25mm x W: 18.6mm +/- 0.25mm
PLATE THICKNESS	Min: 0.55mm Max: 3.50mm
WEIGHT	25g
POWER SUPPLY	11.5 – 22.5V, must be current limited to <250mA
CURRENT CONSUMPTION	Nominal: 18mA Maximum: 32mA
NUMBER OF DALI DEVICES SUPPORTED	DALI PSU dependent up to a maximum number of 12 devices
COMPATIBLE POWERED DALI DRIVERS	Philips SR, OSRAM Dexal and Tridonic drivers with integrated DALI bus power supply
DIMMING	Logarithmic Note: The DALI driver must be configured for logarithmic dimming function.
SENSOR NODE AMBIENT TEMPERATURE (ta)	0ºC … 50ºC
SENSOR NODE CASE TEMPERATURE (tc)	0ºC … 55ºC
NODE TO NODE COMMUNICATION PROTOCOL – CONTROL	Organic Response – Wireless infrared
NODE TO NODE COMMUNICATION PROTOCOL – DATA	Wirepas – Wireless RF
RF FREQUENCY BAND	2.4 GHz
RF RANGE – NODE TO NODE	8m – non-LOS (max)
J1 and J2 TERMINALS	Wire Type: 0.25 – 0.75mm^2 (solid) 0.34 – 0.50mm^2 (stranded) Strip Length: 8mm +/- 0.5mm
RF OPERATIONAL PERFORMANCE	Ability to operate in an office environment with performance unaffected by surrounding structures, walls, ceilings, enclosures and by other RF devices which may be present.
NODES PER IoT GATEWAY	150 (max) – this limit is based on bandwidth and redundancy for general cases. Please contact OR Technologies for further information around this limit for custom application
PRODUCT ENVIRONMENT FOR USE	Indoor areas, with maximum recommended ceiling height of 3.7m
EMC COMPLIANCE	EN 55015: 2015 EN 61547: 2009 ETSI EN 301 489-1 V2.1.1 (2017-02) ETSI EN 301 489-17 V2.2.1 (2012-09) ETSI EN 301 489-1 V3.1.1 (2017-02)
RADIO COMPLIANCE	ETSI EN 300 328 V2.1.1 (2016 – 11)
ELECTRICAL SAFETY COMPLIANCE	AS/NZS 61347.2.11 :2003 AS/NZS 61347.1 :2016 IEC/EN 61347-12-11:2001 IEC/EN 61347-1:2015 IEC 60695-10-2-2004 (Ball pressure test on Sensor Node 3 Black) AS/NZS 60695.10.2:2004 (Ball pressure test on Sensor Node 3 Black) IEC 60695-2-10:2001 (Glow wire test on Sensor Node 3 Black)

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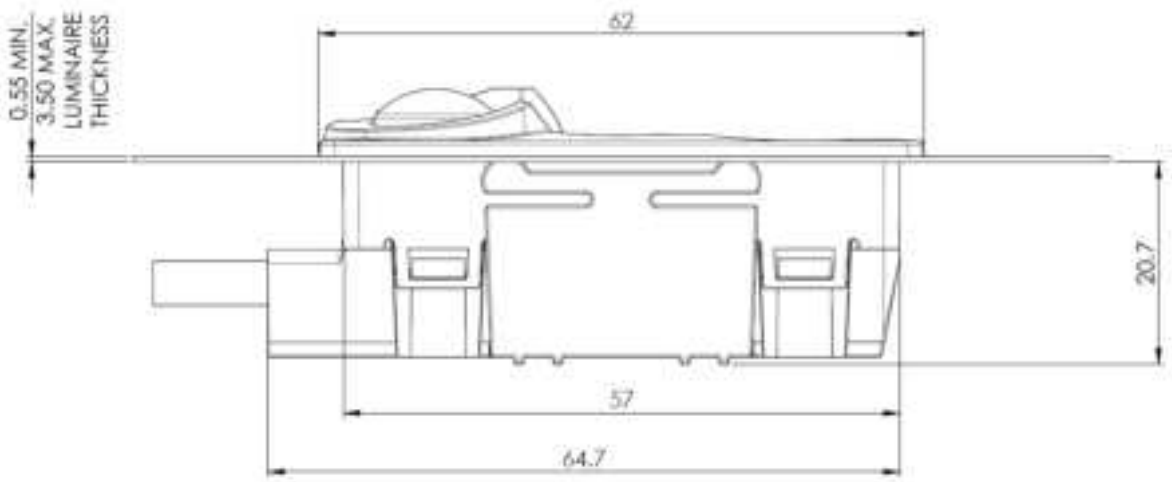
COMPLIES WITH EC DIRECTIVES	EMC Directive 2014/30/EU Radio Equipment Directive 2014/53/EU RoHS2 Directive 2011/65/EU
ATS COMPLIANCE FOR BATTERY POWERED EMERGENCY LIGHTING	EN 62034:2012 Note: All SN3-enabled Emergency Lighting Units must have a “Type PER” mark on the luminaire panel and must be visible at the time of installation to adhere to EN 62034
FCC CERTIFICATION	FCC ID：2BCWQSN3 This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
ISED CERTIFICATION	IC: 31225-SN3
UL RECOGNITION	c US AUXILIARY SENSOR E537243 This device is evaluated for use in Pollution Degree 2 environments. This device is evaluated as a Type 1, Operating Control (non-safety) with Class A control function.

DIMENSIONS, LUMINAIRE CUT-OUT MATERIAL THICKNESS:



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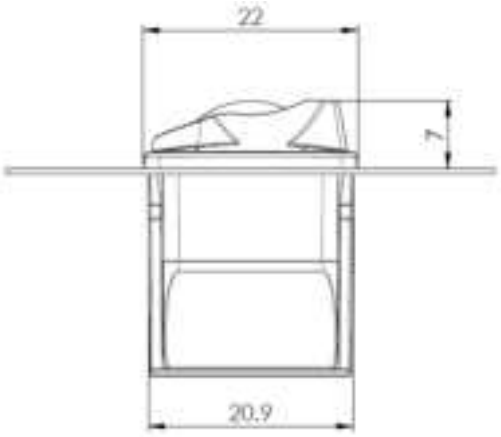

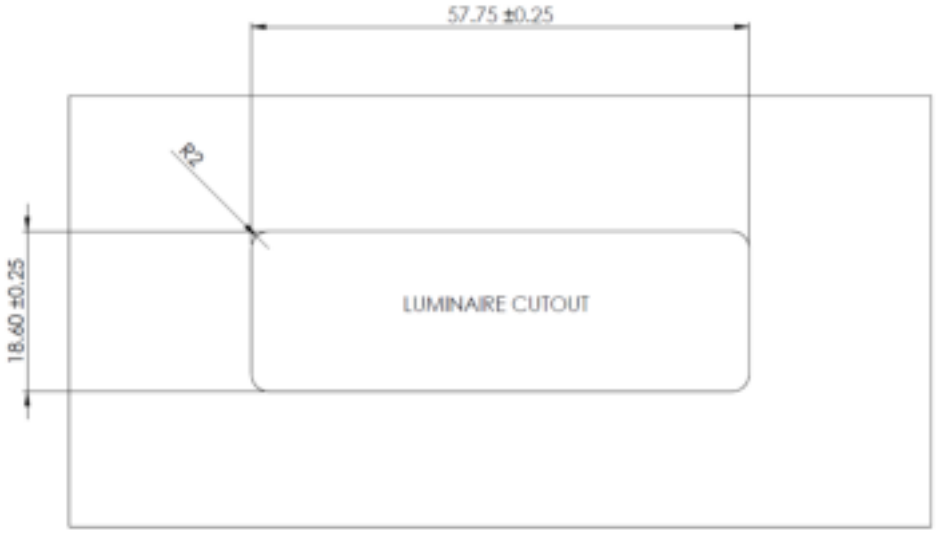

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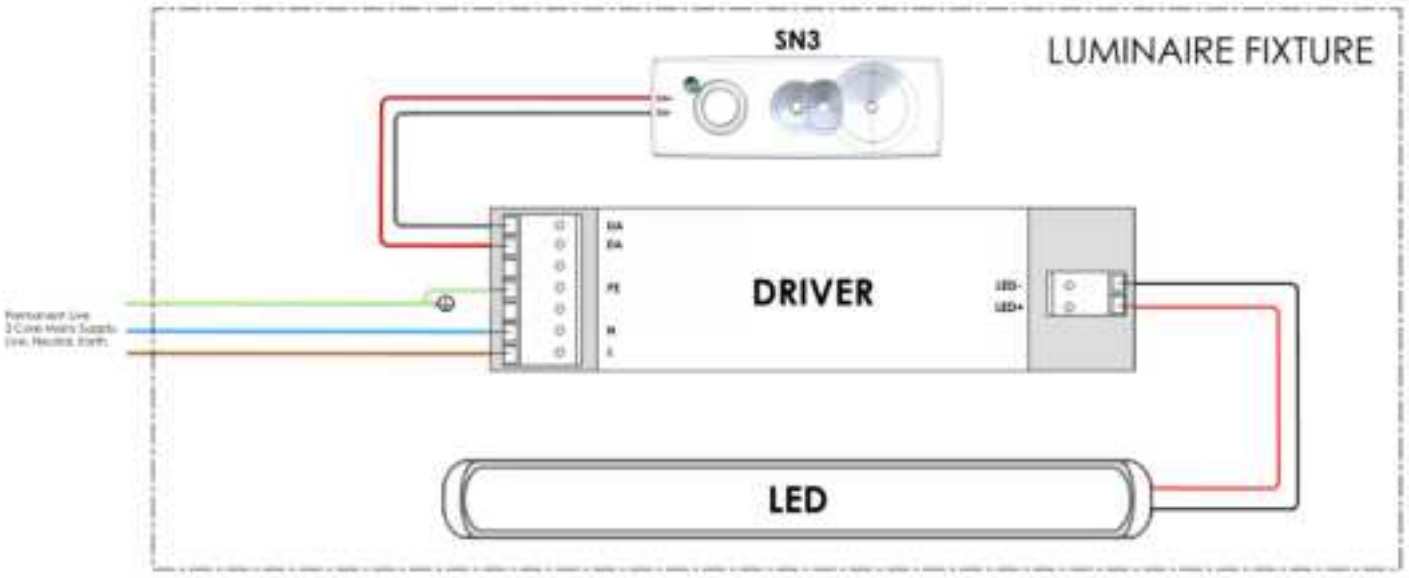
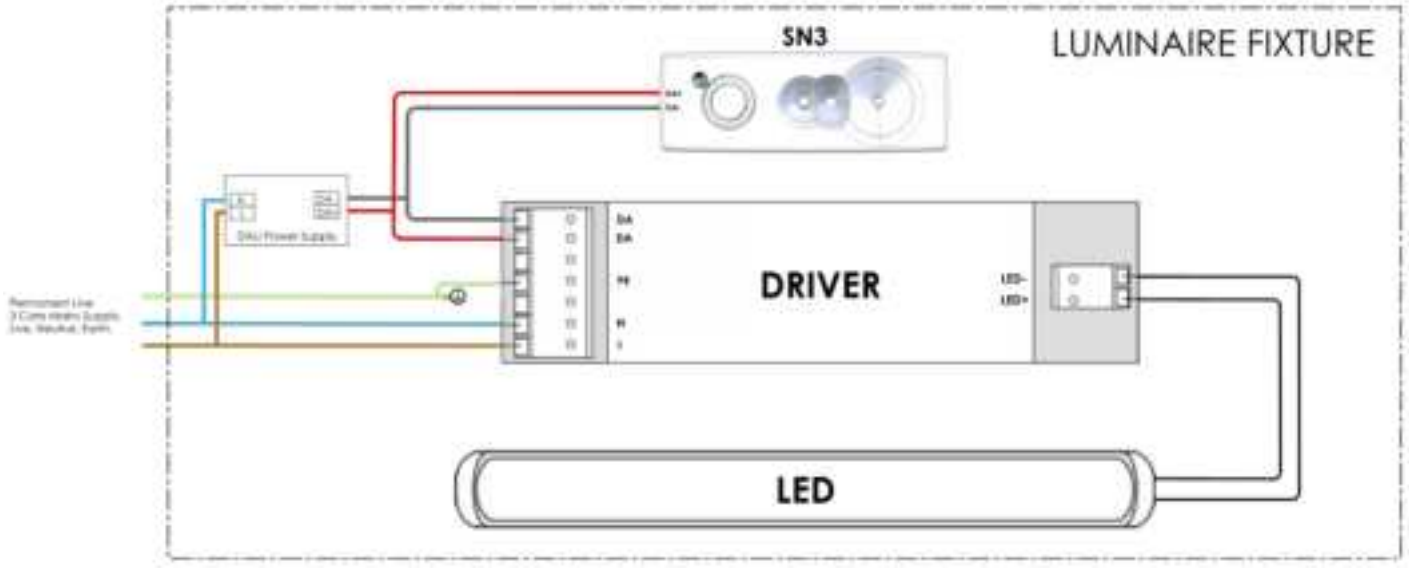
WIRING DIAGRAMS:

1. **DALI drivers with integrated DALI Bus power supply**



2. **Standard DALI Drivers**



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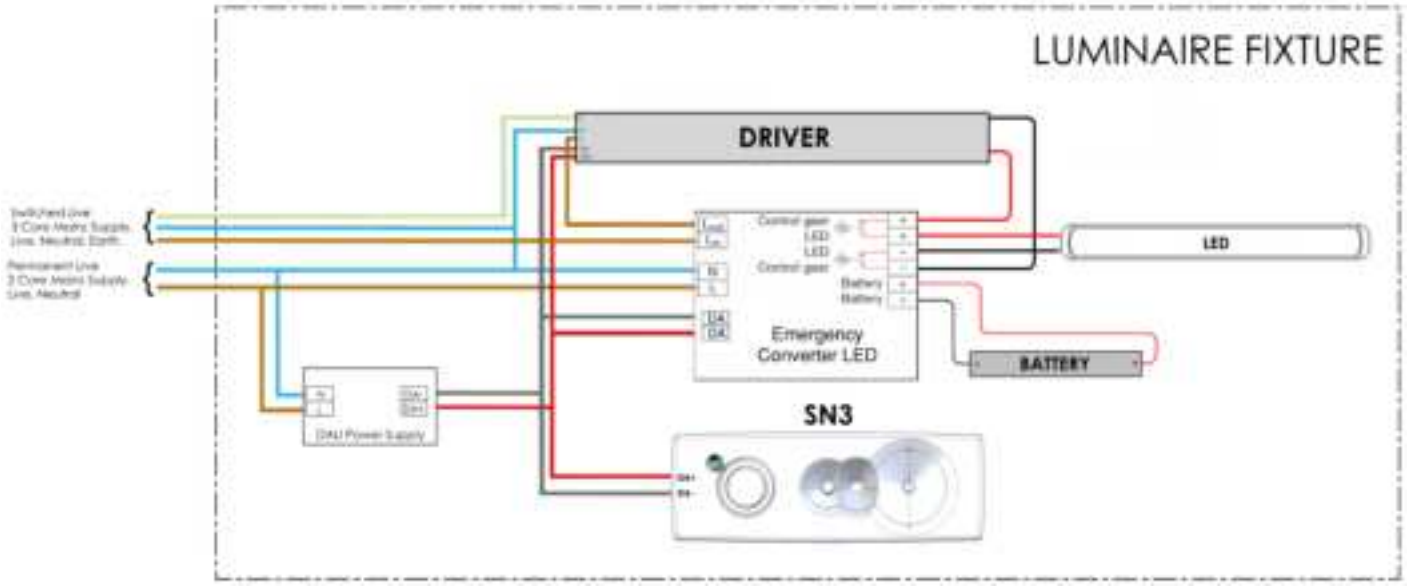
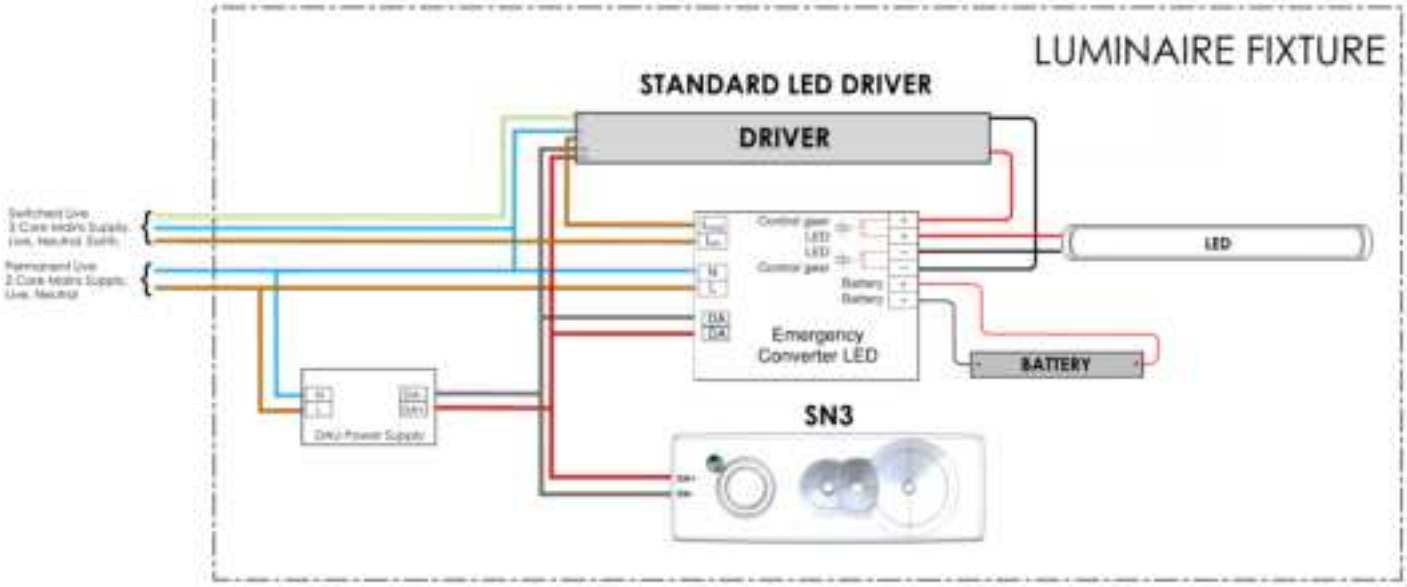
EMERGENCY WIRING DIAGRAMS – DEFAULT CONFIGURATION:

1. **DALI drivers with integrated DALI Bus power supply**



2. **Standard DALI Drivers**



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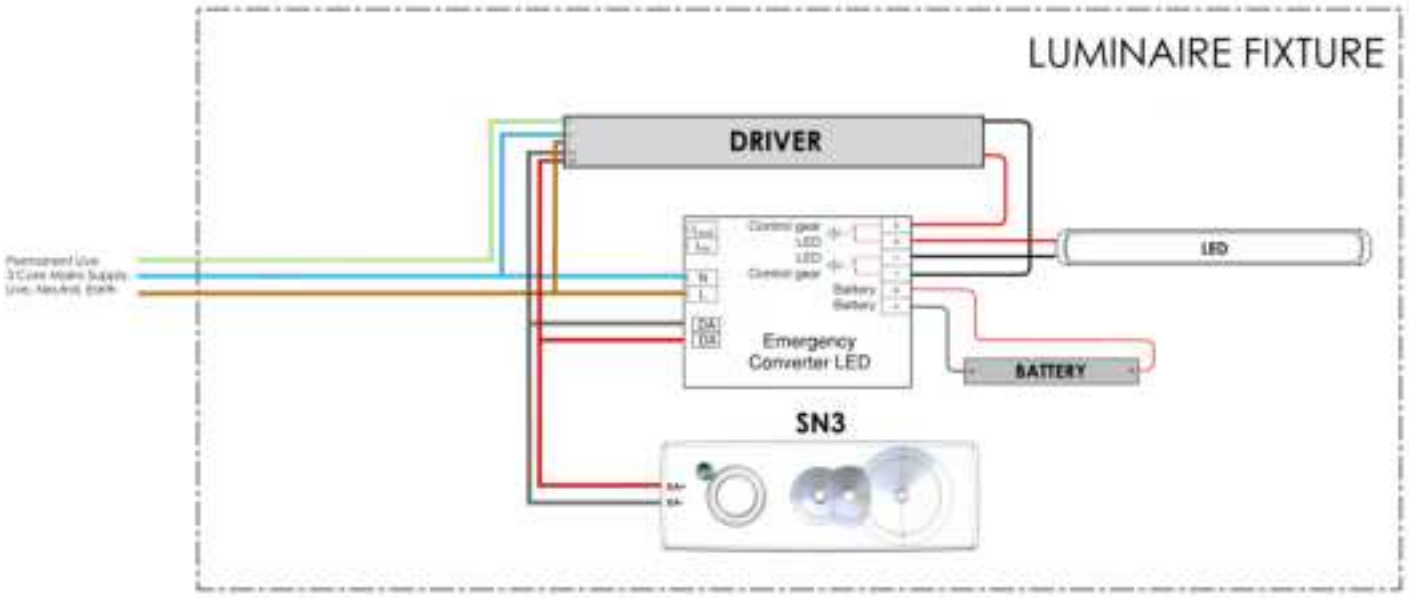
EMERGENCY WIRING DIAGRAMS – ALTERNATE CONFIGURATION:

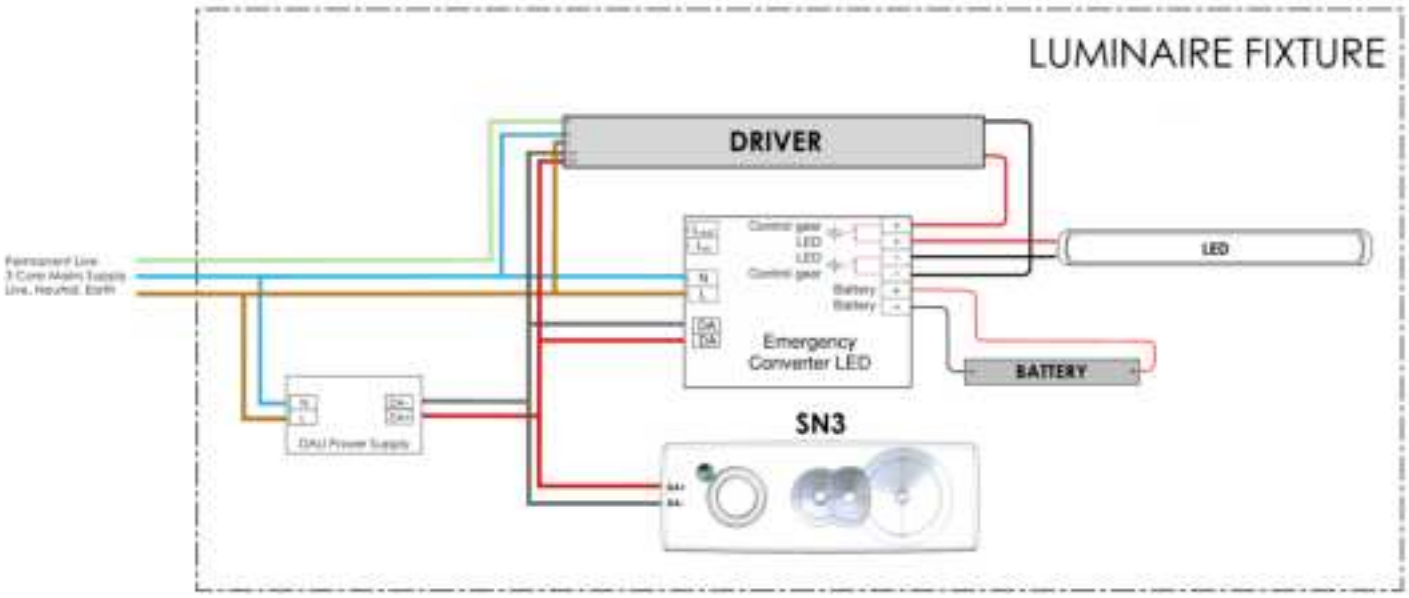
Note: The following configurations require full testing to verify correct performance.

1. DALI drivers with integrated DALI Bus power supply

Note: This configuration is fully applicable to Philips TrustSight Emergency Controllers Gen3 (and later versions) and on both TrustSight DALI and IDT (Instant Duration Test) versions in combination with Philips SR LED drivers.



2. Standard DALI Drivers



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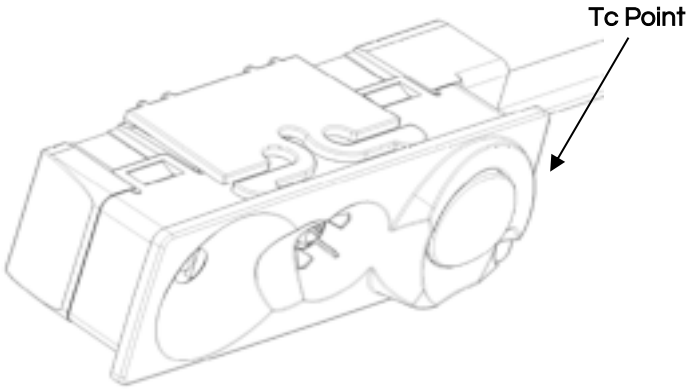
TC POINT TEMPERATURE:



Subject to change without notice. Please contact OR Technologies for further details.

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COMPLIANCE INFORMATION

FCC:

FCC ID：2BCWQSN3

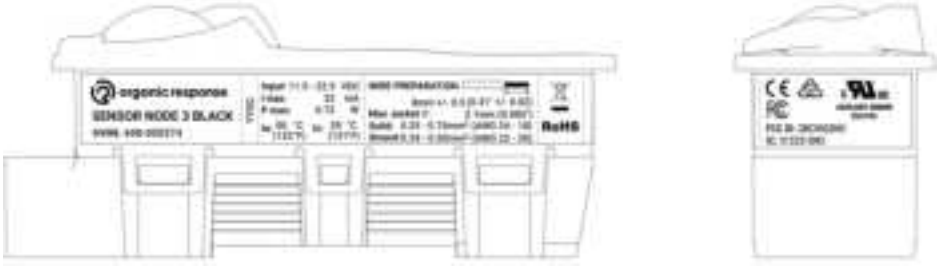
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning
the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device (excluding its handset) and users.

SN3: 448-000304 Label Location



SN3 Black: 448-000374 Label Location

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ISED:

IC: 31225-SN3

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1.This device may not cause interference.
2.This device must accept any interference, including interference that may cause undesired operation of the device.
L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
1.L'appareil ne doit pas produire de brouillage ;
2.L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class [B] digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.

This equipment complies with Canadian radiation exposure limits set forth for uncontrolled environments. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Déclaration d'IC sur l'exposition aux radiations:
Cet équipement est conforme aux limites d'exposition aux radiations définies par le Canada pour des environnements non contrôlés. Cet équipement doit être installé et utilisé à une distance minimum de 20 cm entre l'antenne et votre corps.
Cet émetteur ne doit pas être installé au même endroit ni utilisé avec une autre antenne ou un autre émetteur.