

Nepto  Lux

Pioneer in emergency lighting systems –  
Green light for green choices



## NEPTOLUX

Pioneer in emergency lighting systems –  
Green light for green choices

Neptolux is a forerunner in environmentally friendly product design for emergency lighting systems. The environmental values and cost-efficiency are particularly evident in the low costs associated with installing, operating and maintaining the system due to low energy consumption and CO<sub>2</sub> emissions coupled with the flexibility of installation, as fireproof wire systems are not needed, for example. The Neptolux security light system was designed bearing operational safety and user-friendliness in mind.

Neptolux systems have been installed in shopping centres, hotels, manufacturing plants, office buildings and other public premises, for example. Neptolux systems are delivered world-wide.

- **quick and clear system for planning the design**
- **cost-effective all the way from planning to the end of its life-cycle**
- **energy-efficient LED lights**
- **low operating and maintenance costs**
- **does not require heavy-duty fireproof wire systems.**
- **top-notch operational reliability – automated testing**

### The most energy-efficient LED lights on the market

The addressable Neptolux guide and escape route lights achieve up to 90 % lower energy consumption than a traditional emergency LED lighting system equipped with central batteries. The power consumption of the Neptolux guide light is only approximately 0.2 W even after power dissipation is factored in. Only a fraction of the full capacity of the LEDs are utilised, which allows power consumption to be minimised. The LED power of Neptolux guide lights is only approximately 10 % of the maximum allowed by the manufacturer. Guide lights have been mandated to operate continuously, so there are a total of approximately 8,760 operating hours annually. The operating hours highlight the importance of the small light-specific power when reducing the overall power consumption of the system. Increasing the service life of the light electronics and light source are equally important.

### Light cabling allows for effortless expandability and suitability for demanding sites

The lights in the Neptolux emergency light system are unit-specifically backed up with batteries, so fireproof wire systems are not necessary. The lightweight cabling allows the emergency lighting system to be easily modified and installed when the building is renovated, for example. Neptolux emergency lighting is excellent for properties where the cabling must be minimal and discreet, such as architecturally demanding sites (museums, exhibitions and other valuable sites).

### Quick and easy to design

The system does not require fireproof wire systems. It is easy to plan the cabling: the emergency lights and guide lights can be installed on the same line. The wiring for the system can be divided into control layers or areas, for example. All Neptolux guide and emergency lights use the same base, with the exception of step lights.

### Top-notch operational reliability

The functionality of the escape route lighting can only be ensured with regular functionality tests and maintenance. The central unit for the addressable Neptolux emergency light system is a centre equipped with battery backup, which monitors and tests itself and the lights constantly and feeds the operating voltage to the lights in normal conditions.

Automatic testing monitors the condition of the emergency lights and guide lights and provides an instant notification of a missing/disconnected light and creates an alarm in the building automation system or other designated system, for example. Information of the procedures is stored in the memory of the centre and the malfunction/alarm information is displayed on the screen of the remote panel, in accordance with Standard EN 62034.

Neptolux was granted the Automatic Testing Standard (ATS) approval in February 2017. The requirements set in Standard ATS 62034 Neptolux had already fulfilled in 2006. The purpose of the standard is to improve the operational reliability of systems and ensure the hardware is constantly monitored.



Hotel Torni  
Helsinki



During a power outage, the lights operate using their own batteries. The electronics in the lights prevent the batteries from completely discharging during a long power outage. The lights will function in every situation, even if the central unit is damaged or inoperable or the channel cable is severed.

#### Low operating costs

Nearly a thousand EUR can be saved in energy consumption annually at even a relatively small site, in addition to becoming more environmentally friendly. A Neptolux guide light only consumes less than 0.3W, including power dissipation. Guide lights have been mandated to operate continuously, so there are a total of approximately 8,760 operating hours annually. In addition to low power consumption, the basis for the design of Neptolux lights is maximising the age of the LED light sources and the ease of completing replacements.

Automatic testing keeps the emergency lighting testing costs low and ensures the system's functionality. Automatic testing monitors the condition of the emergency lights and guide lights and provides an instant notification of a missing/disconnected light and creates an alarm in the building automation system or other designated system, for example. Information of the procedures is stored in the memory of the centre and the malfunction/alarm information is displayed on the screen of the remote panel, in accordance with Standard EN 62034.

#### Easy and quick installation creates savings

The wiring for the Neptolux system is quick and easy to install using KLMA 2 x 0.8 + 0.8 cables. The wiring for the system be divided into control layers or areas, for example. The escape route lights are connected to the same line regardless of whether they are guide or emergency lights. Due to its unique guidance software, installation costs including configuration are significantly lower than that of traditional systems.

Installation-friendly security lights are literally installed within moments. The cabling and lighting bases can be installed in advance and the lights are attached to the bases during the final phases of construction. The bases are the same for all lights with the exception of step lights installed to mounting boxes. This way, the unit does not need to be protected from construction-related dust, dirt, and damages.

#### Long life-cycle

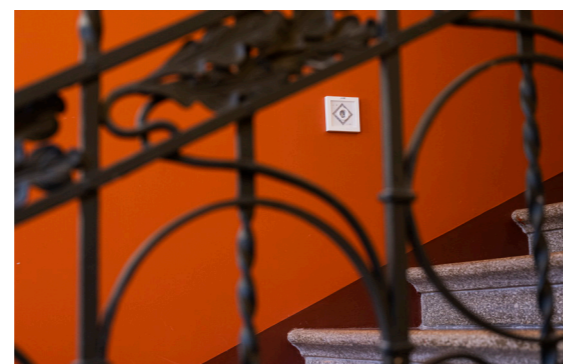
The life-cycle of the lights is very long and the useful life of the batteries is up to 10 years. The LED power of Neptolux guide lights is only approximately 10 % of the maximum allowed by the manufacturer, which allows the light sources to have the same life-expectancy as the time between renovations. Automatic testing ensures that the system is always in full operational condition and the lights do not have to be inspected visually. The materials used in the products are also long-lasting.

#### Speciality sites

The range of products also includes solutions for demanding sites in addition to programmable functionalities. Examples of these include movie theatres (dimmiability), hospitals, nursing homes (night lights) and the lighting for guard routes for security personnel working nights.

#### Fulfils the following standards, among others:

- EN 60598-2-22
- EN 1838
- EN 50172
- EN 62034 ATS



## SOME OF OUR REFERENCE SITES

- Education center Akvarelli, Forssa
- Hotel Torni, Helsinki
- Löyly, Helsinki
- Helsinki City Theatre
- National Library of Finland, Helsinki
- AINOA shopping centre, Espoo
- Solo Sokos Hotel Torni, Tampere
- Sokos Hotel Paviljonki, Jyväskylä
- Alma Media head office, Helsinki
- Flamingo Entertainment Center, Vantaa
- Classical High School, Tampere
- Arlanda Airport, Stockholm
- Åhlens City, Stockholm
- Värta terminal bridge, Stockholm
- Dublin Airport, Ireland



# SYSTEM STRUCTURE



## GUIDE LIGHTS N20 AND N40

Addressable LED guide lights for 20 m and 40 m viewing distances



The energy consumption of Neptolux guide lights is up to 90 % lower (N20: 0.24 W and N40: 0.77 W) when compared to other similar guide lights, cf. p. 4. Only a fraction of the full capacity of the LEDs is utilised, which allows power consumption to be minimised and the service life of the LEDs to be maximised. Therefore, Neptolux lights also do not suffer from significant dimming over the years, even though the brightness levels can be increased if so desired. The brightness of the lights can be programmed based on different conditions.

The guide lights have unit-specific battery back-ups, which means that they do not need a fireproof wiring system. Neptolux lights are excellent for sites where the cabling must be minimal and discreet, such as architecturally demanding sites (museums, exhibitions and other valuable sites).

- material plastic
- fire class UL94 V-O
- models 20 m and 40 m: D1 (down), L1 (left), R1 (right)
- operation time 1 h/3 h
- casing class IP20
- IP55 sealing kit available as accessory
- model 20 m: total depth wall mounting 71 mm; total height ceiling mounting 171.5 mm (+ 10 mm base YBN-R/3/WHT)
- model 40 m: total depth wall mounting 69.3 mm; total height ceiling mounting 268 mm (+ 10 mm base YBN-R/3/WHT)
- sign dimensions 20 m: 195 x 132 mm and 40 m: 322 x 229 mm
- frame white
- also available in black (check availability)
- temperature range: -20 - +40 °C



### Accessories/spare parts

 Guide frame 20 m (incl. battery) N20/N	 Guide frame 40 m (incl. battery) N40/N	 Guide plastic 20 m N20GR-D1 N20GR-R1 N20GR-L1	 Guide plastic 40 m N40GR-D1 N40GR-R1 N40GR-L1
 Addressable detector base YBN-R/3/WHT	 Detector base elevator YBD-RA/WHT	 Concealment label N-40BO and N20BO 8003079 8003077	 Ball protector 20 m / 40 m N20BP N40BP
 Flag bracket NL-LK2	 Ceiling/wall bracket 0.50 m NL-RK-500	 Ceiling/wall bracket 1.5 m NL-RK-1500	 IP55 gasket N-IP-GASKET
 IP box N20-IP67	 IP box N40-IP67		

## EMERGENCY LIGHT N89

Addressable LED emergency light - mounting height 2.5-15 m

The N89 is an addressable emergency light equipped with one power LED and intended for a mounting height of 2.5-15 m. The energy-efficient emergency light is available as N89-O with a round light beam for open spaces and the N89-C with a rectangular beam for hallways. Only a fraction of the full capacity of the LEDs is utilised, which allows power consumption to be minimised and the service life of the LEDs to be maximised. Therefore, Neptolux lights also do not suffer from significant dimming over the years, even though the brightness levels can be increased if so desired. The brightness of the lights can be programmed based on different conditions and the lights can also be used as route or night lighting, for example.

The emergency lights have unit-specific battery back-ups, which means that they do not need a fireproof wiring system. Neptolux lights are excellent for sites where the cabling must be minimal and discreet, such as architecturally demanding sites (museums, exhibitions and other valuable sites).



**N89-O** for open space, round light beam

**N89-C** hallway model, rectangular light beam

- IP55 (with N-IP-GASKET)
- fire class UL94 V-O
- operation time 1 h/3 h
- dimensions Ø 99.4 x 53 mm (+ 10 mm base YBN-R/3/WHT)
- material: Al
- RAL 9003 white



### Accessories/spare parts

 Emergency light, general N89-O	 Emergency light, hallways N89-C	 Addressable detector base YBN-R/3/WHT	 Detector base elevator YBD-RA/WHT
 Li-ion battery 2750 mAh LI-ION/2750	 Ball protector for N68 and N89 N68BP	 IP55 gasket N-IP-GASKET	 Flag bracket NL-LK2
 Ceiling/wall bracket 0.50 m NL-RK-500	 Ceiling/wall bracket 1.5 m NL-RK-1500	 IP67 box NF89-IP67	

## EMERGENCY LIGHT N68

Addressable LED emergency light - mounting height 6-15 m

The N68 is an addressable emergency light equipped with one power LED and intended for a mounting height of 2.5-7.5 m. The energy-efficient emergency light is available as N68-O with a round light beam for open spaces and the N68-C with a rectangular beam for hallways. Only a fraction of the full capacity of the LEDs is utilised, which allows power consumption to be minimised and the service life of the LEDs to be maximised. The brightness of the lights can be programmed based on different conditions and the lights can also be used as route or night lighting, for example.

The emergency lights have unit-specific battery back-ups, which means that they do not need a fireproof wiring system. Neptolux lights are excellent for sites where the cabling must be minimal and discreet, such as architecturally demanding sites (museums, exhibitions and other valuable sites).



**N68-O** for open space, round light beam

**N68-C** hallway model, rectangular light beam

- IP41 (with gasket IP55)
- fire class UL94 V-O
- operation time 1 h/3 h
- dimensions Ø 99.7 x 48 mm (+ 10 mm base YBN-R/3/WHT)
- material: AL+PC+ABS, fire-treated
- RAL 9003 white
- also available in black (check availability)
- temperature range: -20 - +40 °C



### Accessories/spare parts

			
Emergency light, general N68-O	Emergency light, hallways N68-C	Emergency light, 3 h N68-O	Emergency light, hallways, 3h N68-C
			
Addressable detector base YBN-R/3/WHT	Detector base elevator YBD-RA/WHT	Ceiling/wall bracket 0.50 m NL-RK-500	Ceiling/wall bracket 1.5 m NL-RK-1500
			
Flag bracket NL-LK2	Ball protector for N68 and N89 N68BP	Weather protection case N68/89-IP67	IP55 gasket N-IP-GASKET

## FLUSH-MOUNT EMERGENCY LIGHT N68R

Addressable LED emergency light - mounting height 2.5-7,5 m

The N68R-O/C is a flush-mount, addressable emergency light equipped with one power LED and intended for a mounting height of 2.5-7.5 m. The energy-efficient emergency light is available as N68R-O with a round light beam for open spaces and the N68R-C with a rectangular beam for hallways. Only a fraction of the full capacity of the LEDs is utilized, which allows power consumption to be minimized and the service life of the LEDs to be maximized.

The brightness of the lights can be programmed based on different conditions and the lights can also be used as route or night lighting, for example. The emergency lights have unit-specific battery back-ups, which means that they do not need a fireproof wiring system. Neptolux lights are also suitable for architecturally demanding sites, where the emergency lights and their cabling must be discreet and the cabling has to be light.

**N68R-O** for open space, round light beam

**N68R-C** hallway model, rectangular light beam

- IP 20
- fire class UL94 V-O
- operation time 1 h/ 3 h version a separate product
- dimensions Ø 90 x 43 mm
- material PC+ABS, fire-treated
- RAL 9003 white



### Accessories/spare parts



Programming cable for N-series  
lights  
N-PROG

## STEP LIGHT N55

Step light N55 is equipped with one high-power LED providing general lighting and green LED arrow lights to indicate exit direction. The light source of the step light is located low, so they can be used to effectively light floors and steps. In an evacuation situation, the arrows and light movement of the lights direct towards the safest exit route.

Only a fraction of the full capacity of the LEDs is utilized, which allows power consumption to be minimized and the service life of the LEDs to be maximized. Therefore, the lights also do not suffer from significant dimming over the years, even though the brightness levels can be adjusted, if so desired. The brightness of the lights can be programmed based on different conditions and the lights can also be used as route or night lighting, for example.

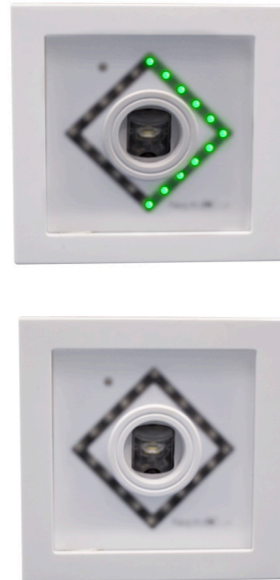
Light available in three different lens models, either Elko, Schneider or Impressivo. The frame is not included in the delivery.

- IP 20
- fire class UL94 V-O
- operation time 1 h/ 3 h version a separate product
- dimensions Ø 85 x 85 x 10 mm
- material PC+ABS, fire-treated
- RAL 9003 white

### Accessories/spare parts



Programming cable for N-series lights  
N-PROG



## NEPTO 3K

### Nepto 3K, addressable emergency light centre

Nepto 3K allows for up to 12 centres to be networked on the same channel. Using Hedring cards, the system can be expanded all the way up to 3,048 lights. Setting up the Nepto 3K centre is very quick and easy due to its own OLED display and setup buttons (incl. channel measurement and analysis).

- one integrated line (127 addresses), expandable with one line card (127 addresses) max. number of addresses is therefore 254
- 8 control inputs integrated in centre, all zone combinations
- centre has 8 integrated line outputs (NC/NO)
- maximum number of centres in loop is 12



#### Protective converter PVST-220/33

- operating voltage 35 VAC/220 VA
- weight 3.2 kg
- dimensions 144 x 210 x 117 mm
- case protection class IP44
- wall-mounting with four screws



#### Remote panel NL-KLG

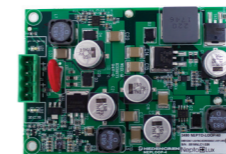
Remote panel equipped with a graphic display for the Nepto 3K emergency light centre. The centre supports a maximum of eight remote panels.

- graphical display 128 x 64 pixels
- display 60,0 x 32,5 mm
- dimensions 147 x 144 x 29 mm
- white



#### Local battery RT1270

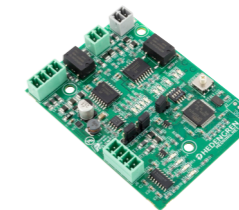
- 12 VDC / 7.2 Ah
- weight 2.35 kg
- 2 needed per centre



#### NEPTO-LOOP

Address expansion card for the NEPTO-3K centre

- additional card 127 addresses
- one additional card slot in the Nepto 3K centre



#### Channel card HEDRING.NET

For connecting Nepto 3K centres to the central channel, 1 for each centre to be connected.

Maximum number of connected centers 12.  
Total number of addresses up to 3048.



#### Graphics software

- Hedcloud
- Hedengren Service Platform

Ask for more details

## Accessories

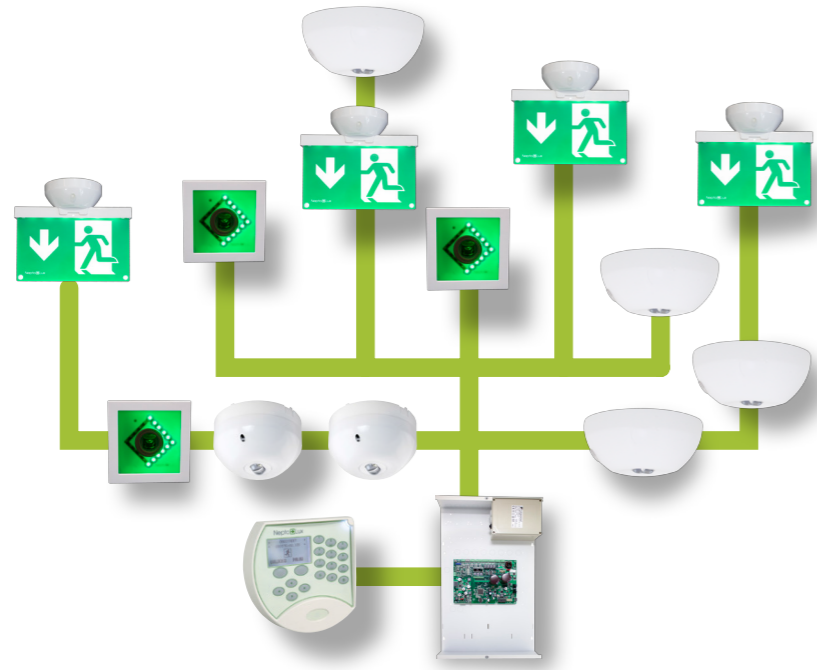
			
<p><b>Programming unit TCH-B200</b> for programming detectors and emergency lighting quickly and with ease.</p>	<p><b>Programming cable HED-PROG/USB</b></p> <ul style="list-style-type: none"> <li>• programming cable for Neptolux system</li> <li>• includes USB-RS232 converter and programming cable that has a D9- and BU1004 connector for the centre</li> <li>• total length approx 2 m</li> </ul>	<p><b>Programming cable for N-series lights N-PROG</b></p> <ul style="list-style-type: none"> <li>• for smooth programming of N55 and N68R lights</li> <li>• Used in conjunction with the TCH-B200 with the programming device</li> </ul>	<p><b>I/O-unit N-IO</b> The start switches and phase monitors are connected to the system using the I/O unit.</p> <ul style="list-style-type: none"> <li>• 4 inputs</li> </ul>
			
<p><b>Phase monitoring relay PLC-RSP-230UC/21</b> Controls the emergency lights during a power outage or fire alarm</p> <ul style="list-style-type: none"> <li>• one relay needed for one phase</li> <li>• three must be ordered for three phases</li> <li>• for zone monitoring using CHQ-DIM/SCI (optional add-on)</li> <li>• Is connected to the group centre in order to recognise power outages.</li> </ul>	<p><b>Recessed mounting with spring attachment for N20 or N40</b> <b>N20-RA</b> <b>N40-RA</b></p> <ul style="list-style-type: none"> <li>• quick and easy to install</li> <li>• white</li> <li>• available in black as NF20-RA/B and NF40-RA/B</li> </ul>	<p><b>IP55 gasket N-IP GASKET</b></p> <ul style="list-style-type: none"> <li>• a rubber seal to seal the gap between the base and the mounting surface and the seam between the base and the product to be installed.</li> <li>• IP55 tightness with seal and N-series light</li> <li>• easy to install</li> </ul>	<p><b>Addressable detector base YBN-R/3/WHT</b></p> <ul style="list-style-type: none"> <li>• IP20</li> <li>• white RAL 9003 ABS</li> <li>• weight 50 g</li> <li>• Ø 100 x 10 mm</li> <li>• connectors max cable thickness 2.5 mm<sup>2</sup></li> </ul>
			
<p><b>Activation button CCP-G</b></p> <ul style="list-style-type: none"> <li>• emergency activation button for emergency lighting</li> <li>• conventional, no resistor</li> <li>• 88 x 88 x 58 mm (surface mounting)</li> <li>• green plastic</li> </ul>	<p><b>Detector base elevator YBD-RA/WHT</b></p> <ul style="list-style-type: none"> <li>• elevation ring for surface mounting</li> <li>• dimensions Ø 110 x 16 mm</li> </ul>	<p><b>Ceiling bracket, plastic NL-RK/P</b></p> <ul style="list-style-type: none"> <li>• suitable for all Neptolux lights</li> </ul>	<p><b>Ceiling bracket, metal NL-RK</b></p> <ul style="list-style-type: none"> <li>• the bracket has threads for the installation base</li> <li>• threading for M8 threaded rod (rod not included)</li> <li>• tightened with a keeper nut</li> <li>• openings for cables</li> <li>• suitable for all Neptolux lights</li> </ul>
			
<p><b>Weather protection case N68-IP67</b> For emergency lights N68</p> <ul style="list-style-type: none"> <li>• IP67</li> </ul>	<p><b>Ball protector for N68 and N89</b> <b>N68BP</b></p>	<p><b>Flag bracket NL-LK2</b></p> <ul style="list-style-type: none"> <li>• for 20 m and 40 m guide lights and NF emergency lights</li> <li>• includes the following: GL500L, NL-LK/KIT and NL-RK</li> <li>• white</li> </ul>	<p><b>Ceiling/wall bracket 0.50 m/1.5 m</b> <b>NL-RK-500 / NL-RK-1500</b></p> <ul style="list-style-type: none"> <li>• suitable for all Neptolux lights</li> <li>• openings for cables</li> <li>• includes the following: GL224D, GL224D-EXT-1M, NL-LK/KIT and NL-RK</li> </ul>



Wood City  
Helsinki



## SYSTEM STRUCTURE



### Cabling

The wiring for the Neptolux system is quick and easy to install using KLMA 2 x 0.8 + 0.8 cables. The wiring for the system be divided into control layers or areas, for example The escape route lights are connected to the same line regardless of whether they are guide or emergency lights. The installation bases by Neptolux allow connecting cabling prior to even installing the actual lights. When wanted, lights can be installed to the base using an easy rotating motion, based on the progress of the construction effort, without connection work. The lights can be rotated into place onto the bases when construction nears completion. This makes it possible to not have to worry about protecting the devices during construction.

### Monitoring

Neptolux's internal control system has been included with the system. It constantly monitors the condition of the lights' LEDs and batteries. If necessary, the system will give specific information of the status, either locally on the remote panel or by transferring it to the maintenance service provider, monitoring centre or another selected system. Neptolux security system alarms and error

information can be linked to graphic software floor-plans in HedGraphics as alarm points, as part of the security system of the entire facility. In addition, using NEPTO-INSTALL software, the Neptolux security light system can be maintained from the control room.

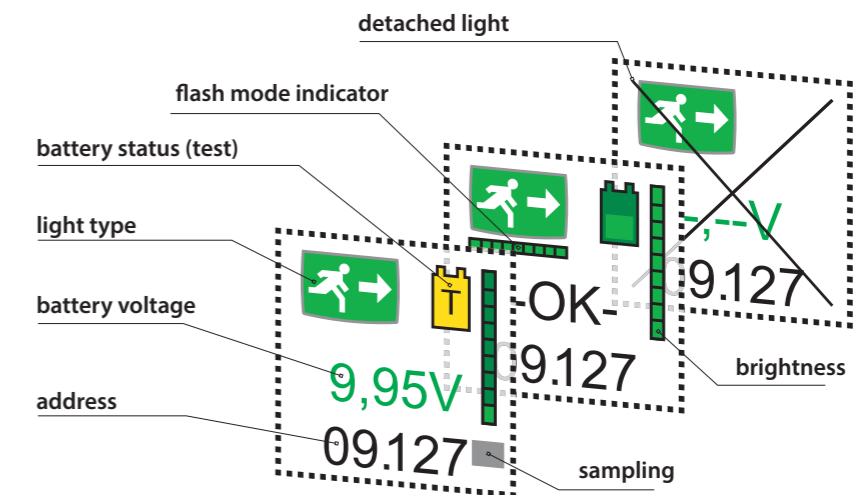
### Continuous automatic testing

The EN 50172 security system standard has placed particular attention to the operational condition of security lighting systems. The system is to be tested regularly once a month, at minimum. The Neptolux security lighting system's central unit continuously monitors and tests the functionality of the system automatically. Information of the procedures is stored in the memory of the centre and the malfunction/alarm information is displayed on the screen of the remote panel, in accordance with Standard EN 62034.

## NEPTO-INSTALL

NEPTO-INSTALL is a full software solution for setting up and maintaining emergency light systems. The software can be used to monitor and report the status of the lights, the line voltage and battery capacity, for example. Monitoring can be completed locally or remotely. The connection to the centre can be made through a data network.

The software saves the test reports in its log, from which they can be read either on-site or remotely. The reports generated by NEPTO-INSTALL contain e.g. the battery capacities in hours in ah-order, the most recent 500 events and potential zone controls. Naturally, the same information can also be viewed on the NL-KLG remote panel. The battery capacities of lights is available in Ah-order. The reports are saved in a separate log.



Point state															
01.001	01.002	01.003	01.004	01.005	01.006	01.007	01.008	01.009	01.010	01.011	01.012	01.013	01.014	01.015	01.016
01.017	01.018	01.019	01.020	01.021	01.022	01.023	01.024	01.025	01.026	01.027	01.028	01.029	01.030	01.031	01.032
01.033	01.034	01.035	01.036	01.037	01.038	01.039	01.040	01.041	01.042	01.043	01.044	01.045	01.046	01.047	01.048
01.049	01.050	01.051	01.052	01.053	01.054	01.055	01.056	01.057	01.058	01.059	01.060	01.061	01.062	01.063	01.064
01.065	01.066	01.067	01.068	01.069	01.070	01.071	01.072	01.073	01.074	01.075	01.076	01.077	01.078	01.079	01.080
01.081	01.082	01.083	01.084	01.085	01.086	01.087	01.088	01.089	01.090	01.091	01.092	01.093	01.094	01.095	01.096
01.097	01.098	01.099	01.100	01.101	01.102	01.103	01.104	01.105	01.106	01.107	01.108	01.109	01.110	01.111	01.112
01.113	01.114	01.115	01.116	01.117	01.118	01.119	01.120	01.121	01.122	01.123	01.124	01.125	01.126	01.127	

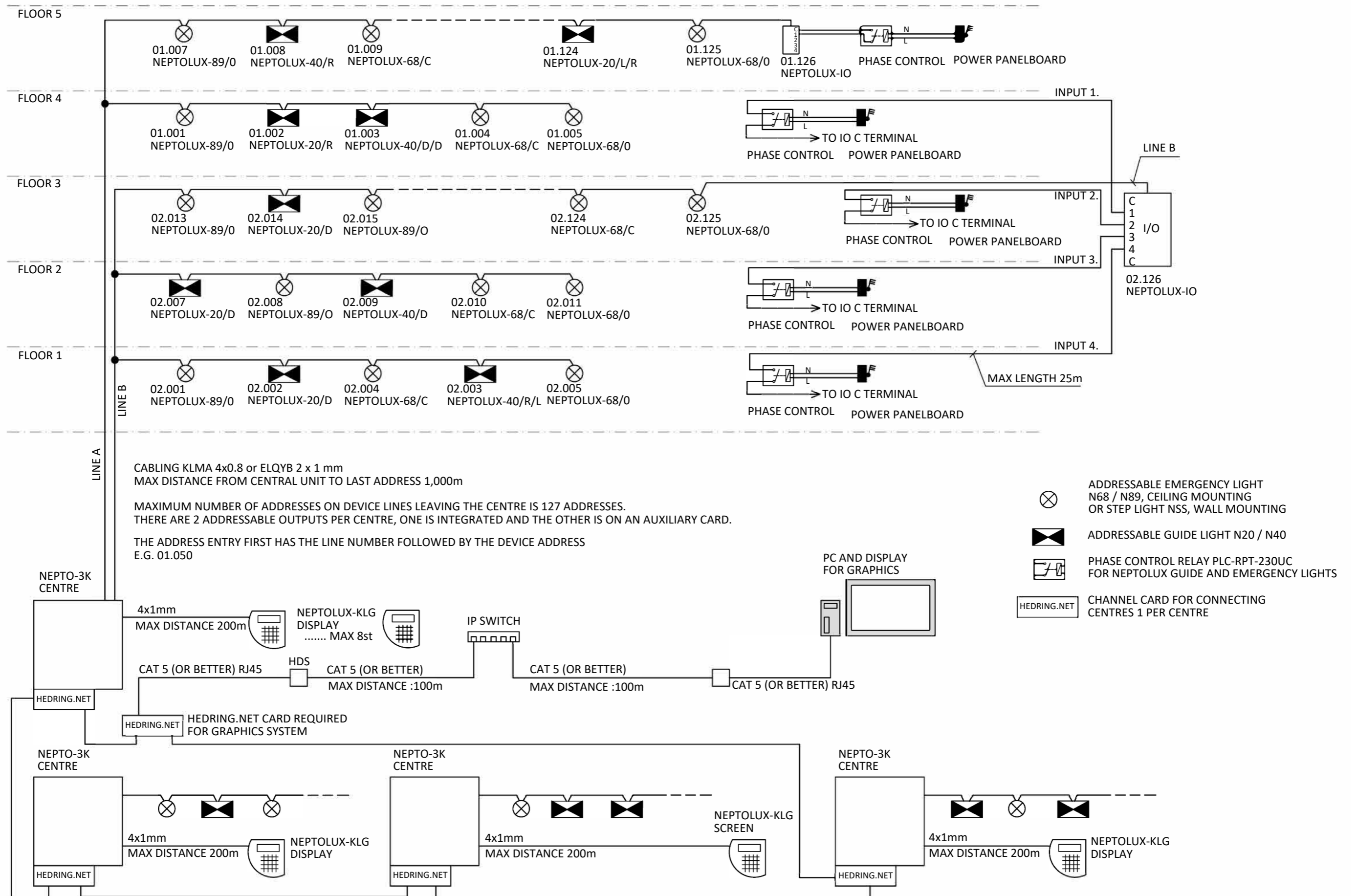
Chosen: 01.001 Type: EL-20 exit sign Battery Top/168mAhJrr:46 Light 65mA Update  
 Area: Lobby State Normal+W/LT-done+WBT-done [100] Show: State Continuous  
 FAULTS: Lighttest 0 Area brightness Test area control -1- Line scope Stop cont.  
 Data: / Battery / Linevoltage Steady Area mode "ON" "OFF" CLOSE

Järjestetty akkulistaus	
0000 mAh (0.00h), OK 03.026 (1.31) Opastin 40M	
0182 mAh (3.15h), OK 03.071 (1.31) Opastin 40M	
0262 mAh (4.54h), OK 03.078 (1.31) Opastin 40M	
0284 mAh (4.06h), OK 03.068 (1.31) Turvavalo	
0284 mAh (7.38h), OK 03.053 (1.32) Opastin 20M	
0290 mAh (4.14h), OK 03.082 (1.31) Turvavalo	
0290 mAh (5.03h), OK 03.021 (1.31) Opastin 40M	
0298 mAh (4.26h), OK 04.033 (1.32) Turvavalo	
0300 mAh (4.29h), OK 03.070 (1.31) Turvavalo	
0310 mAh (4.43h), OK 03.067 (1.31) Turvavalo	
0310 mAh (4.43h), OK 03.074 (1.31) Turvavalo	
0310 mAh (8.05h), OK 03.002 (1.32) Opastin 20M	
0310 mAh (8.05h), OK 03.004 (1.32) Opastin 20M	
0314 mAh (5.44h), OK 03.081 (1.31) Opastin 40M	
0318 mAh (4.54h), OK 03.001 (1.31) Turvavalo	
0320 mAh (8.31h), OK 04.024 (1.32) Opastin 20M	
0320 mAh (8.31h), OK 04.038 (1.32) Opastin 20M	
0320 mAh (8.31h), OK 04.038 (1.32) Opastin 20M	
0334 mAh (8.68h), OK 03.076 (1.32) Opastin 20M	
0334 mAh (8.68h), OK 04.018 (1.32) Opastin 20M	

Sulje Järjestys Luo tiedosto

The battery capacities of lights is available in Ah-order. The reports are saved in a separate log.

# DIAGRAM OF OPERATING PRINCIPLE



**TAMPERE**  
Hedengren Security

**HELSINKI**  
Hedengren

**TALLINNA**  
A/S Hedengren Eesti

**ÅLESUND**  
Hedengren Security AS

**BERGEN**  
Hedengren Security AS

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