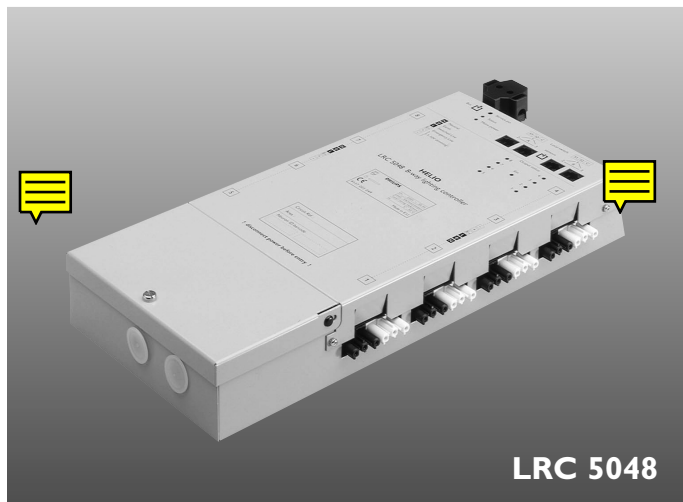


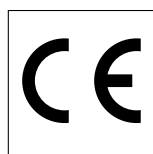
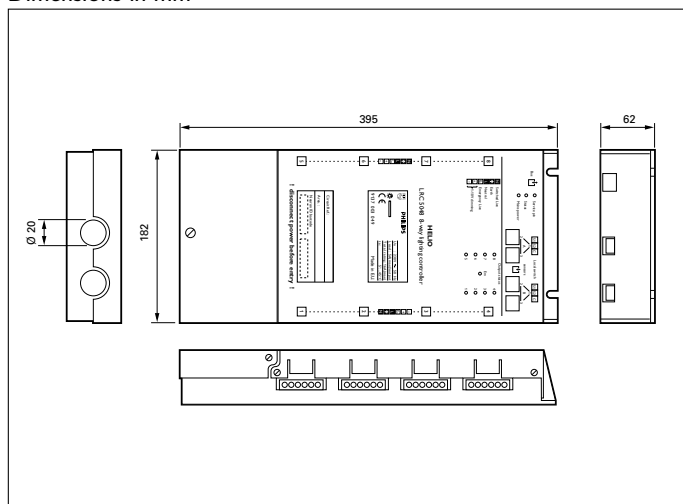
LRC 5048

Helio 8- way light controller



LRC 5048

Dimensions in mm



Product details

General

- The LRC 5048 is a LonWorks™ light controller with eight configurable outputs, two sensor interfaces for standard movement detectors and light sensors and two inputs for standard wall switches. The light controller is LonMark™ compliant and can easily be integrated with other LonMark™ products.
- Each output has a 6-pole Wieland GST socket that provides Live, Neutral & Protective Earth for switching lighting loads up to 5A, a Maintained Live for back-up batteries in emergency luminaires and a + and - for 1-10V HFR dimming (5mA current sinking).
- The Maintained Lives are switched simultaneously by a separate contactor. Back-up battery performance can be visually tested by interrupting all eight Switched Lives and Maintained Live for a defined period. Emergency tests are initiated from PC with Helio software.
- Luminaires with pre-wired flying lead and Wieland GST connector are plugged directly into the outputs. Luminaires with HFR ballasts and/or emergency batteries are connected with 6-pole plugs; luminaires with non-regulating ballasts are connected with 3-pole plugs.
- Nine LEDs are provided on the housing top to indicate the switched state of the output and Maintained Live contactors.
- The light controller has a metal housing with separate mains compartment. The compartment is covered with a hinged lid that is fixed with a screw. Two slots inside the compartment and reinforced lip at the rear of the unit are provided for screw mounting the unit against a wall or ceiling (screws

and plugs are supplied with the unit). BESA slots are also provided inside the mains compartment for fixing the unit against a BESA box fitting.

- The mains compartment has three screw connectors for mains (L,N,PE). It also has nine replaceable fuses that protect the output and Maintained Live contactors against short-circuited lighting loads.
- Mains cables are looped in and out of the compartment through two access holes on the housing front. The holes are dimensioned for 20mm cable glands (not provided). Mains access is also possible through a BESA box entry in the base of the mains compartment.
- The twisted-pair bus cable is screw connected to a 2-pole Wieland plug (loop-in/loop-out) and plugged into a bus input socket at the rear of the unit. Plugs are supplied with the units.

Sensor & push-button interfaces

- Each sensor interface has two modular input sockets for conventional sensors. Up to three movement detectors and a light sensor can be plugged into either socket with standard sensor cables. A modular branching connector is needed when more than two sensors are connected.
- The light controller has two input sockets for normally-open push-button switches. The switches are connected with low-volt 3-core cables and 3-pole Weidmuller plugs (type BLAT 3/SNOR - not supplied with the unit). Each socket has two digital inputs for separate switches - one to switch lights on and increase lighting levels and one to switch lights off and decrease lighting levels. Any number of wall switches can be connected in parallel to the

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digital inputs. It is also possible to configure both digital inputs for toggle on/off switching (not dimming) with one switch.

- IR remote control is possible with the LRI 5133 Helio multi-sensor which is connected directly to the bus. The Helio multi-sensor can also be used to increase the number of sensor interfaces in an application.

Commissioning software

- Unilon and Helio application software is used to configure the movement detector, light sensor and switch functions in each interface and to link them to individual outputs in any light controller. The functionality of connected luminaires is defined by setting the control parameters of each output.
- The unit's neuron ID is registered in Unilon by pressing a service pin on the housing front. Neuron IDs are also printed in bar-code and hexadecimal characters on two stickers placed on the unit. This allows ID registration by bar-code scanner or keyboard.

Applications

- The LRC 5048 is optimised for automatic and manual light control in open-plan offices. Combined with the LRI 5133 Helio multi-sensor, IRT 8065 wall transmitter with internal temperature sensor and IRT 8070 multi-purpose hand transmitter, users are offered IR remote control of lighting, window blind and HVAC functions in integrated applications.
- Installation costs and risks are reduced because luminaires with pre-wired lead and Wieland plug are connected rapidly and fault-free to controller outputs. The same applies for sensors which are connected with standard sensor cables. Since lighting functions and functional relations are defined by software, re-wiring is unnecessary when office layouts change.
- Light sensors are typically used in open-plan offices for daylight linking of window-side luminaires. Movement detectors can be placed in local working areas to automatically switch lights to standby (e.g. minimum level) when areas are vacated and then off when standby timers expire. Wall switches are used to switch and regulate lights in public areas like corridors and staircases.
- Movement detectors in open-plan areas can be used to control both local and corridor lighting (corridor watch). In this case corridors or lights are configured to switch off when the entire office area has been vacated.
- Applications with occupancy and manual control can be configured for 'energy saving' or 'hands-free' operations. In both cases, lights automatically switch off when areas remain unoccupied for a defined period. In 'energy saving' applications e.g. private offices, automatic switch on (if enabled) is only possible if lights were not previously switched off manually. In 'hands-free' applications e.g. public meeting areas, lights always switch on automatic when someone re-enters the area (also after they were switched off manually).
- Lights can also be controlled manually and by clock. During normal working hours (clock on), users are free to switch and regulate off-

ce lighting with a wall switch or IR remote control (no presets). Before lights are switched off by clock, they dim to the minimum level for 30 sec. to warn users that automatic switch off is imminent. If lighting is still needed, users can switch lights back to the previous level for one hour (fixed). After an hour, lights again go to minimum for 30 sec. before they automatically switch off (unless they are switched back on for another hour).

Related equipment and software

Helio

- multi-sensor LRI 5133
- system clock LCU 5315
- digital I/O unit LCU 5305

Standard sensors

- movement detector LRM 8112 (ceiling) and LRM 8015 (wall)
- light sensor LRL 8101
- multi-sensor LRI 8133 (IR receiver cannot be used)

IR transmitters (only with Helio multi-sensor)

- wall transmitter IRT 8060
- wall transmitter with temperature sensor IRT 8065
- hand transmitter IRT 8070

Connecting equipment

- sensor cable LCC 8012; 5m with modular plug & socket
- sensor cable LCC 8013; 20m with modular plug and socket
- sensor cable LCC 8014; 5m with modular plugs at both ends
- branching connector LCC 8024; 3 sockets/1 plug
- bus cable IFS 31; 100m long twisted-pair cable

Software

- Unilon software LCS 5400/00 (version 2.1 or higher)
- Helio Manual Control LCS 5410/00; application software with DLLs for luminaires, light controllers, IR receiver and switch
- Helio Energy Saving LCS 5415/00; application software with DLLs for light sensor; movement detector; system clock
- Helio multi-sensor DLL LCS 5501/00; configuration software for Helio multi-sensor
- System Clock DLL LCS 5502/00; configuration software for Helio system clock

Related documentation

- Installation instructions LRC 5048 (GB) 3222 609 27802
- Unilon Handbook (GB) 3222 636 49010
- Helio Application Sheets (GB) (under preparation)

Packing data

Type	Box dimensions (mm)	Qty	Material	Weight (kg)	
				net	gross
Unit box	510x225x75	1	cardboard	3300	3650
Outer box	530x230x335	4	cardboard	13200	15250

Ordering data

Type	MOQ	Ordering number	EAN code level 1	EAN code level 2
LRC 5048/00	4	9137 003 09403	87 11559 516882	87 11559 516 899

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Technical data

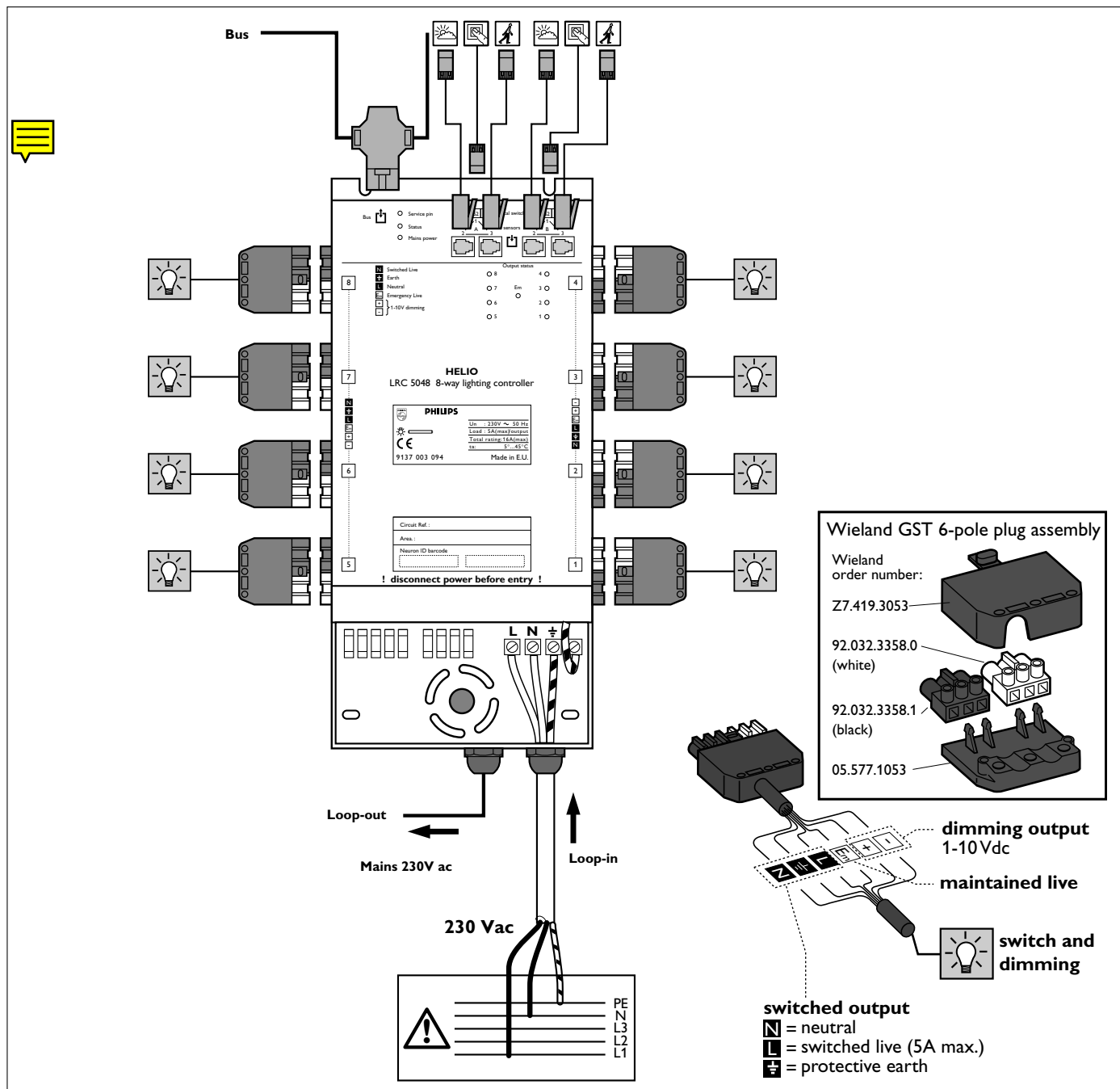
- Environmental conditions
 - Operating conditions
 - Temperature +5 to +45 deg.C
 - Rel. humidity 15% to 90%; no condensation
 - Storage conditions
 - Temperature -40 to +70 deg.C
 - Rel. humidity 5% to 95%
- Mains input
 - 230Vac \pm 10%; 50Hz
 - Connection Three screw terminals (L,N,PE). Each terminal is suited for two solid or stranded wires with cross-section of 0.5 to 2.5mm² (loop-in/loop-out)
- Outputs
 - Switched load 1150VA (per output); any type of lighting load
 - Maintained Live load 1150VA (total); for switching back-up batteries in emergency luminaires
 - Maximum total load Depends on fusing of primary (mains) circuit:
 - 16A (total) for fused circuits
 - 20A (total) for circuits protected with MCB type B or C
 - Regulating load 1-10Vdc; current sinking (max. 5mA per output)
 - Connection 6-pole Wieland socket (2 x GST 18-3); plugs supplied with luminaires
- Sensor interface
 - Power supply +12Vdc \pm 10%; 40mA per sensor interface for:
 - movement detector (3 max.)
 - light sensor (1 max.)
 - Connection 2 modular sockets per sensor interface for:
 - branching connector or sensor cables with RJ 12 (6p/6c) modular plugs (not supplied with unit - see Related equipment for type nrs.)
- Switch interface
 - Type 2 digital inputs per push-button interface suited for:
 - two normally-open push-button switches (for on/up & off/down) or
 - one normally-open push-button switch (for on/off toggle)
 (switches are not supplied with unit)
 - Connection 1 modular input socket/interface for:
 - Weidmuller 3-pole modular plug (not supplied with unit - type BLAT 3/SNOR)
- LED indicators
 - Outputs 8 green LEDs indicate switched state of individual output contactors
 - Maintained Live 1 green LED indicates switched state of Maintained Live contactor
 - Power 1 green LED indicates presence of mains power
 - Service 1 yellow LED indicates configured state of unit
 - flash = unit is unconfigured
 - off = unit is configured (factory default)
 - on = unit is defective or has no application software
- Communication
 - Bus cable Twisted-pair cable, max. 2.5mm² per strand. The bus must be double isolated from mains (4kV)
 - Types IFS 31, Belden 85102, Belden 8471
 - Connection 2-pole Wieland socket for Wieland ST 17-2 plug (supplied with unit - order nr: for spare plug 93.914.0058.1)
 - Service pin At rear of housing. Press to generate neuron ID over bus
- Housing
 - Material Metal installer box housing
 - Mounting Screw mounting against wall or ceiling (screws and plugs are supplied);
 - two open-ended slots at rear of housing and two slots in mains compartment for 5 mm² screws
 - slots in mains compartment for BESA box mounting
 - Weight 3300gr.
- Safety
 - Housing protection class IP 20
 - Insulation
 - sensor/switch/bus part
 - Double insulation (4kV) towards mains
 - Supplementary insulation (2.5kV) towards regulating output
 - regulating part Basic insulation (2kV) towards mains
 - Ballasts/dimmers Connected regulating ballasts and dimmers must have at least basic insulation (2kV) towards connected mains
- EMC compliance
 - Immunity EN 61547
 - Emission EN 55015, EN 55022 Class A

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Miscellaneous

Electrical Connections and Wiring Diagram



Notes:

- The light controller must be electrically connected to neutral and protective earth.
- Sensor cables can be manufactured on site or ordered from Philips (see Related equipment). The maximum allowable cable length between a sensor and light controller is 30 m. The maximum cable length for switches is 125 m.
- There are two groups of modular input sockets for sensors and switches; group A & B. Each group has two parallel connected input sockets (RJ12) for movement detectors & light sensors and one 3-pin input socket (Weidmuller) for push-button

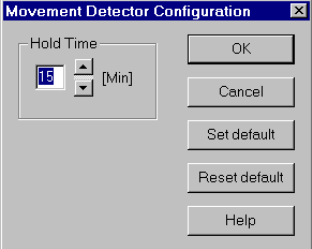
- switches. Movement detectors and light sensors can be plugged into either RJ12 socket. It is important to note which group (A or B) the sensors and switches are connected to during physical installation. This information is needed when light controllers are commissioned with Helio software.
- Luminaires can be plugged into any available output socket. As with sensors and switches, it is important to note which light controller output (1...8) luminaires have been connected to during physical installation. This information is also needed during commissioning.


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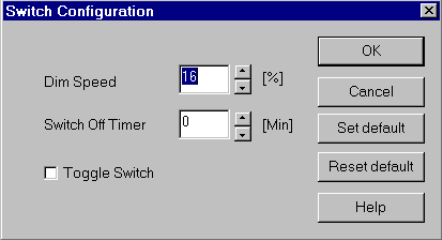
Configuration dialogues


Sensor and switch objects



 **2x**

Hold timer = delays transmission of the unoccupied state to linked controller outputs.

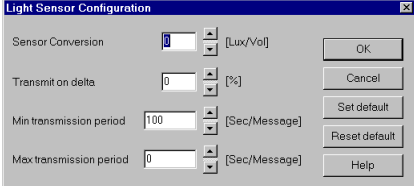



 **2x**

Dim Speed = no. of dim steps between min. and max. light level (e.g. 2 = 16 steps, 4 = 8 steps, etc.)

Switch Off Timer = automatic switch-off when timer expires

Toggle Switch = If set, switch input is used for on/off toggle switching with one switch. If not set, input is used for on/up & off/down switching with separate switches.



 **2x**

Sensor Conversion = adjusts the light sensor for different reflection coefficients in an area.

Transmit on delta = transmits a new lux measurement if daylight levels increase or decrease by more than delta.

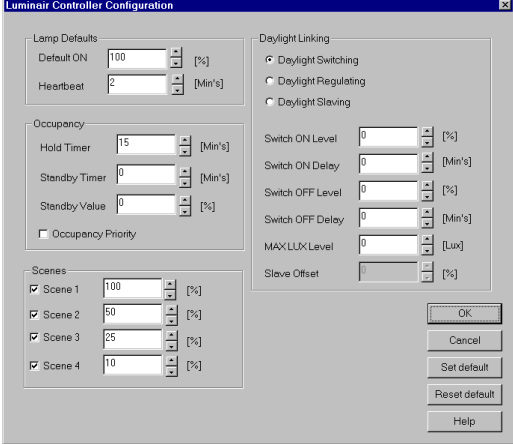
Min. trans. period = the maximum duration before a new lux measurement is transmitted.


Max. trans. period = the minimum duration before a new lux measurement is transmitted.

Notes

- The light controller has 14 functional objects that can be configured separately with Helio software; eight controller objects (one for each output) and a movement detector, light sensor and switch object for each sensor/switch interface. Helio's Manual Control package contains the controller and switch objects; Helio's Energy Saving package contains the light sensor and movement detector objects.
- The sensor and switch objects can be functionally linked to any output (i.e. controller object) in any light controller with Helio software.

Light controller objects



 **8x**

Default ON = percentage of the max. installed lux level (Default ON level)

Heartbeat = transmits the actuator's switched & dimming state to the network at specified intervals (e.g. for 'slave' controllers or supervisor tool).

Manual control & Occupancy control

When lights are switched on by movement detector; wall switch or IR remote control (channel switching only), the current lux level is increased by the **Default ON** level. Manual control can be used to temporarily change lighting levels. If Default ON is set to 0%, manual changes are stored as new Default ON values.

Automatic switch on by movement detector is only possible if the **Occupancy Priority** parameter has been set (even if lights were previously switched off manually or by clock).

When the movement detector's Hold Timer expires, the current lux level can be maintained until the controller's **Hold Timer** expires. When this timer expires, lights can be switched to a fixed **Standby Value**. Lights switch off automatically when the **Standby Timer** expires.

Daylight control

When lights are switched on manually or by movement detector, the lux level on a working surface is increased to obtain the Default ON level. The **Max Lux level** parameter (= installed lux level) must be defined in this case.

The automatic switch on & off levels (**Switch ON Level & Switch OFF Level**) are expressed as percentages of the Default ON level (e.g. Switch ON Level = 100%; Switch OFF Level = 150%). Automatic switch on or off can be disabled by giving these parameters high values (e.g. 1000%).

Automatic switch on & off can be delayed by setting the **Switch OFF Delay & Switch ON Delay** timers.

Clock control

If a clock is linked to the light controller, **Scene** percentage (Scene 1...4) is used instead of Default ON to define light/lux levels when lights are switched on by movement detector; manual control or light sensor (see above).

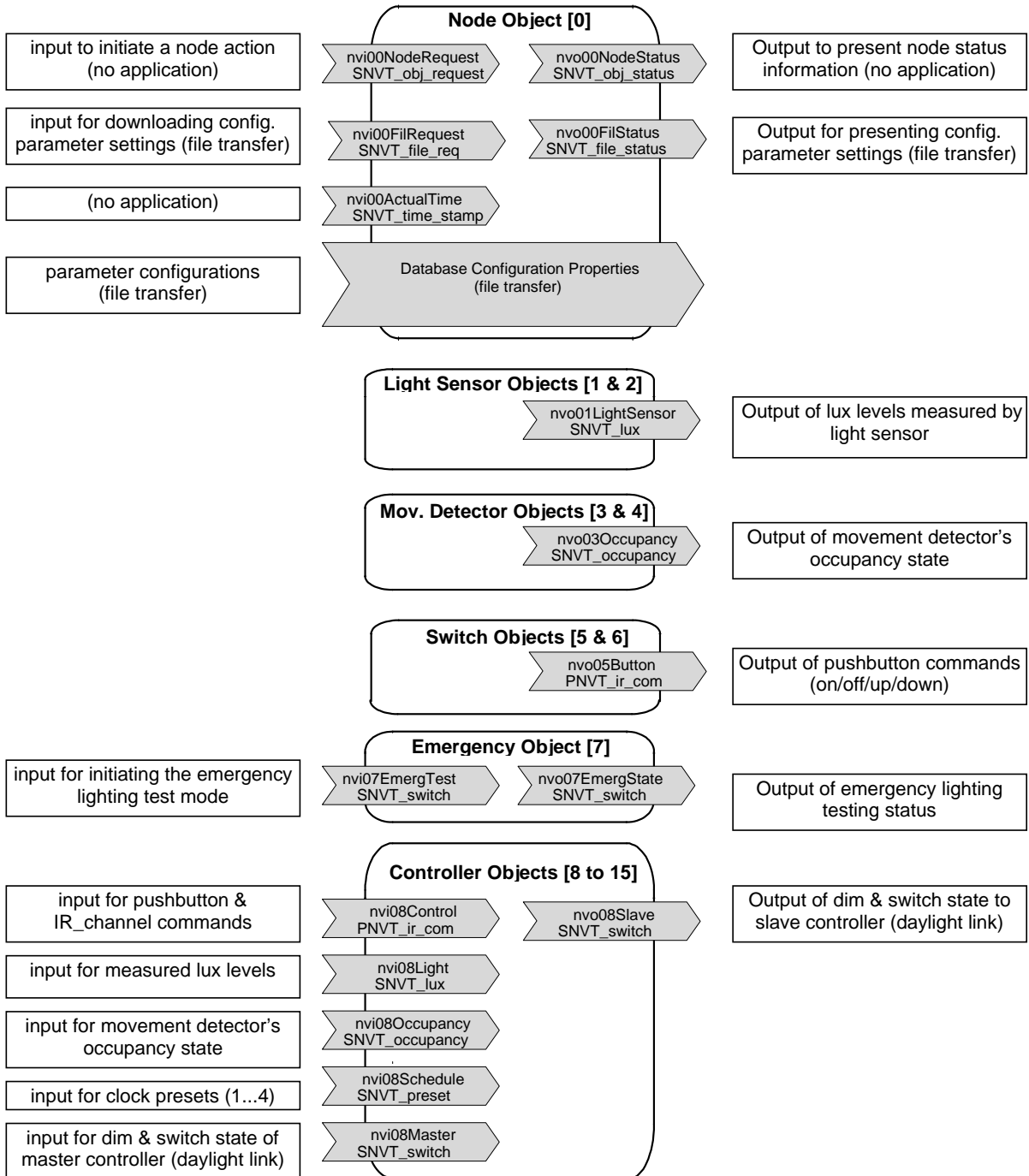
If a clock has switched lights off (Scene = 0%), lights can be manually switched back on to the **Default ON** level for one hour. After an hour, lights switch to the minimum level for 30 sec. before they automatically switch off.

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3222 636 31000
07/98
Printed in the Netherlands
Data subject to change
<http://www.philips.com/lighting>

Profile of LRC 5048 8-way light controller



PHILIPS