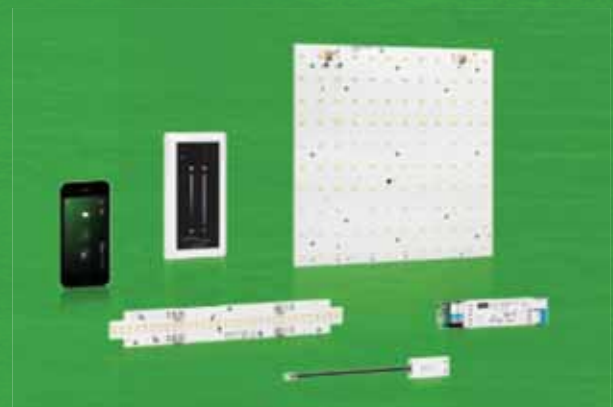


## ● Human Centric Lighting In sync with inner clock

### LED system components for white/white applications

- MixedWhite light management systems
- MixedWhite LED modules
- Electronic control gear units





## Human Centric Lighting – healthy light for the whole day

Light affects our well-being, frames our day and night rhythm, and improves our ability to concentrate. "Human Centric Lighting" is the overarching term for one of the most promising and fastest-growing market segments in the area of professional illumination. At the centre of this is the impact artificial light has on our health and wellbeing. The spectral composition of the artificial light as well as the illumination level are modelled after the course of natural daylight and replicate it perfectly. This way, the light has an activating or relaxing impact on the human organism. The light of the future is healthy.



**Human Centric Lighting**  
makes the day light.



Additional information is available at our website:  
[www.HumanCentricLight.com](http://www.HumanCentricLight.com)

# Table of Contents

## Human Centric Lighting

Introduction to Human Centric Lighting	7
The impact of light on humans	8
LIGHTGATE MixedWhite <i>basic</i> (manual HCL)	10
LIGHTGATE MixedWhite <i>plus</i> (automatic HCL)	11
Applied HCL - application examples	12
Industry	14
Office	15
School class	16
Geriatric care	17

Intro

## HCL Components - product overview

Overview of ASTARES MixedWhite LED modules	18
Standard configurations of LED modules and ECG	20
Controller      LIGHTGATE MixedWhite <i>basic</i>	22
Controller      LIGHTGATE MixedWhite <i>plus</i>	24
Clock-Module    LIGHTGATE MixedWhite <i>plus</i>	26
Touchpanel      LIGHTGATE MixedWhite <i>plus</i>	28
Sensor            LIGHTGATE MixedWhite <i>plus</i>	30
App                Installation App MixedWhite <i>plus</i>	32
LED modules     ASTARES MixedWhite      Project service	33
LED modules     ASTARES MixedWhite      A-Series	34
LED modules     ASTARES MixedWhite      B-Series	36
LED modules     ASTARES MixedWhite      C-Series	38
LED modules     ASTARES MixedWhite      D-Series	40
LED modules     ASTARES MixedWhite      E-Series	42
ECG                ZITARES intelligent          SELV	44
ECG                ZITARES CCD <sup>2nd</sup> generation    SELV	46
ECG                ZITARES NCD                  Non-SELV	48
Software          zitaires360	50
Programming device    BAG360-Interface	51

HCL Components

## Accessories

52

Accessories



# Future-oriented from experience

Our history is the basis for perfect solutions.



Future-oriented from tradition: since days gone by, BAG has identified technologically promising fields early on and has developed perfectly fitting solutions. Our company's roots reach all the way back to the year 1909. More than 40 years ago already, the first igniters were manufactured in Turgi, Switzerland. This constituted the start of our success story as partner of the lighting industry.

The know-how and experience of our 3,000 employees worldwide make the difference. In addition to the headquarters in Arnsberg, Germany, we have several sales and development sites in Europe and Asia as well as state-of-the-art production facilities in China, India and the Philippines. Our products are sold and distributed around the globe in more than 50 countries.

1909

**Our company's roots**

The Swiss bronze goods factory Bronzwaren-Fabrik AG (BAG) is founded in Turgi, Switzerland.

1967

**BAG Turgi starts the production of igniters**

After GE invented the high-pressure sodium vapour lamp, BAG starts producing a supply unit consisting of a thyristor-controlled igniter and an inductive ballast.

1968

**BAG Turgi markets the first hot restrike igniters**

Osram releases the first thyristor-controlled hot restrike igniter from BAG for the operation of the 400 W high-pressure sodium vapour lamp. More releases for igniters follow.

1981

**The first electronic control gear is presented**

At the Hanover Fair, BAG - for the first time - introduces electronic control gear units for fluorescent lamps

1998/99

**Founding of a production facility in the Philippines**

The first foreign production facility is founded in the Philippines, near Manila.

**Expansion in China**

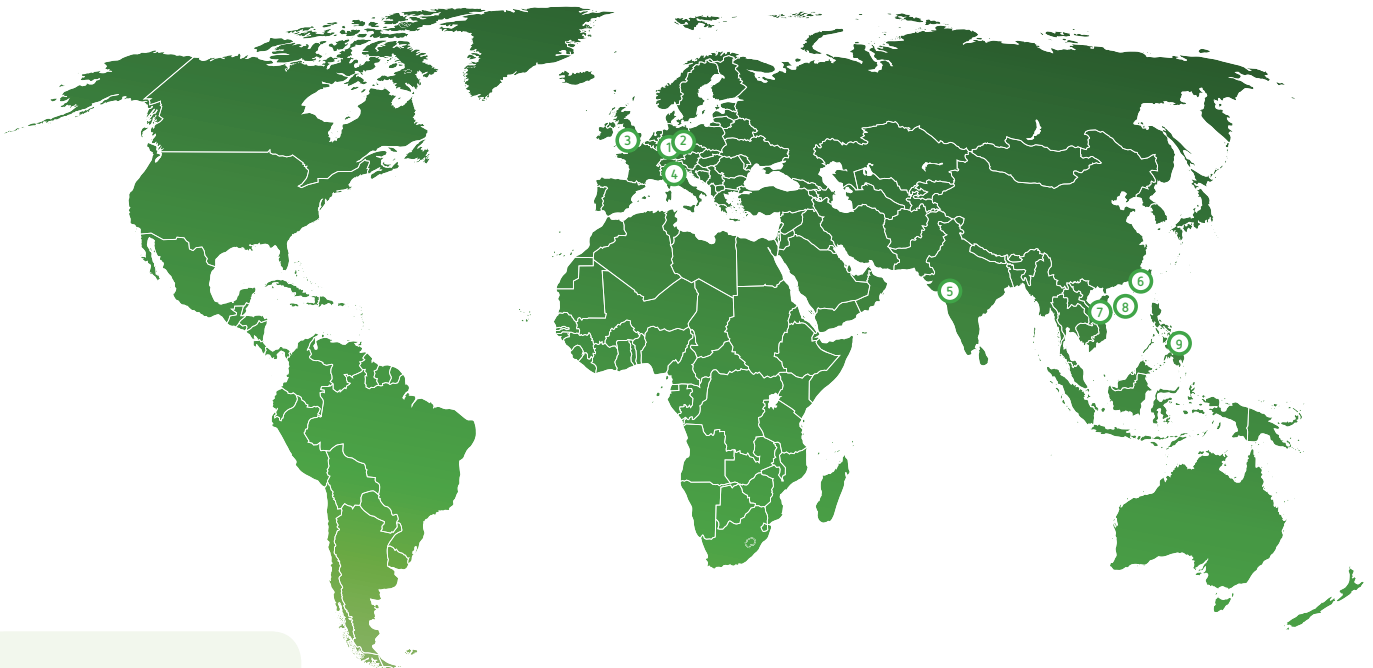
A production facility is founded in Zhuhai.

2000

**The Multi-Lamp technology arrives**

A new era is heralded with the series production of the world's very first electronic control gear for fluorescent lamps in Multi-Lamp technology.

# Our locations



**1 Arnsberg, Germany**  
Marketing & Sales, Research and Development, Production, Administration

**2 Espelkamp, Germany**  
Research and development

**3 London, United Kingdom**  
Sales

**4 Milan, Italy**  
Sales

**5 Pune, India**  
Production, Sales, Development

**6 Guangzhou, China**  
Sales, Development

**7 Zhuhai, China**  
Production, Sales, Development

**8 Hong Kong, China**  
Marketing, Sales

**9 Manila, Philippines**  
Production, Sales

2002

2005

2009

2012

2014

2015

## Acquisition of and relocation of BAG Turgi

Founding of BAG electronics GmbH Location in Arnsberg, Germany.

Concentration of all activities in the areas Manufacturing, Development, Sales Administration, Marketing, Purchasing, and Logistics.

## Market introduction of the ZIRIUS hot restrike igniters

In the area of hot restrike ignition, the new ZIRIUS generation of fully electronic igniters with intelligent ignition management system provides numerous advantages for applications with HID lamps.

## BAG electronics acquires HÜCO Lightronic in Espelkamp

The high quality products become a part of the expanded product portfolio of BAG and the HÜCO employees strengthen the organisation. Just in time for Light+Building 2010, it's happening: With the revealing of the new corporate design, the dual brand strategy is dropped and HÜCO Lightronic now is also named BAG.

## BAG establishes the LEDcycle

With the founding of a separate business segment, all activities around the technology of the future, LED, are bundled to benefit our customers.

## ZITARES intelligent revolutionises LED control

Everything from a single source: With the reliable and powerful LED ECG of the ZITARES family and the zitares360 software, BAG is creating the complete solution. Through "ZITARES intelligent", LED operation is becoming more flexible than ever before.

## Human Centric Lighting – solutions from a single-source

BAG proves once more to be a trendsetter by already having presented convincing solutions for Human Centric Lighting at the Light&Building exhibition in 2014. A next development step follows in 2015 – with cost-efficient and future-oriented MixedWhite-Systems.

# Quality does not know any compromises

To us, our customer's satisfaction is what is most important.

A mature, time and again fine-tuned quality management, based on the ISO certification, is guaranteeing the quality and reliability that is being expected from BAG products. The quality control of each and every product is just as important for us careful selection of suppliers and the continuous monitoring of all quality-relevant processes.

Prior to delivery, each product is checked thoroughly. The test systems used are developed in Germany based on the state of the art in technology and therefore guarantee a uniform level of quality across all sites - worldwide.

# Efficiency and precision

Expect more from us.

**5 YEARS**  
warranty

The objective recognition of the comprehensive quality management system is reflected in the numerous international quality marks with which our products are labelled.

This is further emphasised by the accreditation of our development laboratory in accordance with the Test Data Acceptance Program (TDAP) of the Association of German Electricians (VDE).

Quality and precision are prerequisites for reliable lighting solutions – expect more from us. More service, individual solutions, and comprehensive technical support.

## BAG 5-year warranty

With BAG products, you are always deciding for innovative technologies, constant high manufacturing standards, as well as a lifetime of above average length. Simply quality that you can rely on permanently. This is what we stand for with our brand, with the highest quality standards, as well as with efficient processes.

The reliability of our products pays off for you in the form of high economic efficiency and operational safety. In order to fulfil your expectations as best as possible, we provide you with long warranty periods – straight-forward, and safe and secure, completely without prior registration: you enjoy a warranty period of 5 years on all electronic BAG products with a rated lifetime of  $\geq 50,000$  operating hours.



BAG ISO 9001:2008-Certificate



BAG ISO 9001:2008 IQNet



# Human Centric Lighting

Inspired by the sun, we bring daylight into the building.

## Light that serves the human being

Human Centric Lighting lays the focus on the impact of light on human well-being and health.

The spectral composition of the artificial light, expressed as the most similar colour temperature, as well as its temporal change are modelled after the course of natural daylight and replicate it to the greatest extent possible.

These parameters are decisive when it comes to whether or not the light has an activating or relaxing impact on the human organism. Light is knowingly affecting our "inner clock".

A lighting that is modelled after natural daylight supports the natural biorhythm of humans around the clock:

It makes a human being feel well, potent, and able to sleep better.



## Light that adjusts to the human biorhythm

Responsible for the biorhythm of human beings is their hormonal balance, particularly that of melatonin, which is responsible for our wake and sleep patterns.

The share of blue in daylight controls the melatonin level in the human body via receptors in the eye, and thereby the ability to concentrate. It also affects the alertness and the readiness to sleep.

If the artificial light adjusts to the natural human biorhythm via the control of the colour temperatures, among other things, our ability to concentrate and our performance can be increased significantly. Scientific studies\* show that, for example, the rates of mistakes at schools were reduced by up to 45 % while the speed of work increases by approx. 30 %. Even at workplaces, employee's level of performance increased by almost 20 %, in addition to a higher motivation level.

\*Results report: "Wirksamkeit von dynamischem Licht im Schulunterricht [Effectiveness of dynamic light during class time]", Hamburg-Eppendorf University Clinic, 2014

## Prerequisites for health light

In order to successfully realise Human Centric Lighting projects and to design illumination that is biologically effective, three requirements are of central importance:



- The lighting system allows for a colour temperature of the artificial light that corresponds as closely as possible to that of natural daylight.
- The lighting automatically changes with respect to light colour and level of brightness, and does, as such, replicate the natural course of daylight – or fulfils other, specific target requirements in the sense of a biological effectiveness ("inner clock").
- The lighting in the room and within the field of vision of the human being is distributed in such a way that it complies with both, the physiological requirements of the visual task (and therewith also with the requirements posed by standards), as well as taking into consideration the directionality of the photo receptors in the human eye.



# The impact of light on humans

## Replicating the natural rhythm for more quality of life.

### Promising perspectives for Human Centric Lighting

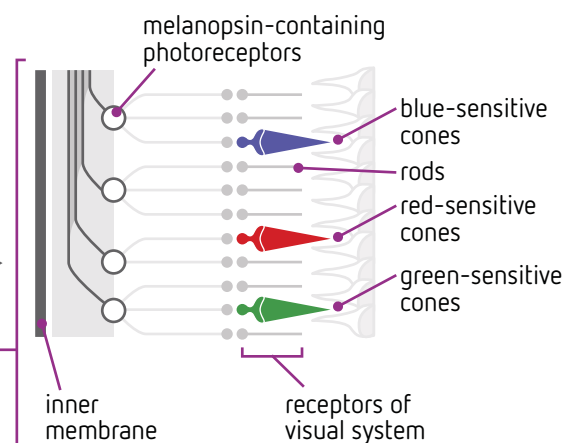
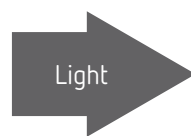
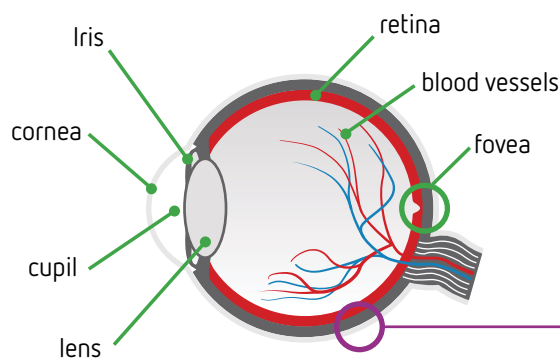
In modern societies, the human being has quite often withdrawn itself from the natural flows: We are spending more and more time in closed rooms under artificial light, many turn "night into day" in their work-life, without taking into consideration the rhythm of the circadian system. Human Centric Lighting helps to reduce these deficits. High quality lighting systems that utilise LED technologies are nowadays capable of replicating circadian rhythms and thereby support our "inner clock". The results include increased well-being, the ability to concentrate and perform better – and, above all: a higher quality of life. As such, it is already possible today to support the natural biorhythm at the workplace via the colour temperature progression over the course of the day: From a stimulating effect before noon via a relaxing lunch-time all the way to phases of concentration in the afternoon.



### In the natural rhythm – how circadian systems shape the flow of our day and our well-being

In the course of evolution, the circadian system developed under the influence of the natural sequence of day and night. Daylight has a decisive impact on physiological and psychological parameters. For instance, in the human eye there are, in addition to the rods and cones that are responsible for seeing bright/dark and colour,

also so-called non-visual photo receptors that are responsible for influencing the human circadian rhythm. The receptors have their highest sensitivity in a wavelength range around approx. 480 nm.



Photoreceptors for daytime vision are particularly concentrated in the fovea (the small depression at the centre of the retina responsible for sharpness of vision,  $\varnothing \sim 1.5$  mm). The area contains

Melanopsin-containing ganglion cells are distributed over the entire retina; the most sensitive are in the lower and nasal areas.

#### Melanopsin

Photosensitive pigment contained in retinal ganglion cells involved in the signal transduction of the non-visual effects of light. Its maximum sensitivity lies at around 480 nanometres – i.e. in the blue spectral region.

#### Ganglion cells

Nerve cells in a ganglion (a mass of nerve cell bodies) that transmit visual information from retina to brain via the optic nerve. Two to three percent of ganglion cells are themselves photosensitive. They contain the pigment melanopsin and trigger biological responses in the body.

Source and additional information available at <http://www.licht.de> (lichtwissen, issue 19)



# In sync with inner clock

How the circadian rhythm is affecting our well-being.

## Circadian rhythm at a glance

- Time of day and time of year shape our rhythm. Be it breathing and heartbeat, being awake or being asleep: All biochemically controlled functions have their individual high and low points over the course of a day.
- Shortly before waking up, body temperature, blood pressure and pulse frequency rise. Approx. one hour later, the body produces stimulating hormones. Therefore, complex mental tasks are easiest to handle between 10 am and 12 noon. The short-term memory is also in high gear; as such, ideal requirements for tests and job interviews.
- Between 12 noon and 2 pm, the stomach produces the most acid. This way, it is not difficult to digest lunch. In the process, the stomach is spending so much energy that the rest of the body gets tired.
- But even without eating anything, we experience a performance low during the middle of the day. In the early afternoon, things improve again for both body and spirit. In turn, the susceptibility to pain is at a low point.
- The performance of those who perform sports between 4 pm and 5 pm is particularly high. This period is ideal for building muscle and for fitness training. The body is best at metabolising the after-sports beer between 6 pm and 8 pm. At this point in time, the liver is performing a particularly high amount of work so that alcohol is handled well.
- When it gets dark, we get tired. At 3 am, our body reaches its absolute low.

It is exactly this natural flow that Human Centric Lighting hooks into – with the objective to support the circadian rhythm of the human being. The human hormonal balance is responsible for the circadian rhythm, particularly the melatonin, responsible for the wake and sleep patterns. To control its release, intelligent lighting systems provide different light spectra with different intensities, dependent on the time of the day. For this, the following applies: light sources with warmer light colour, and therefore with a lower colour temperature, have a lower circadian activation factor. The higher the share of blue in the spectrum of the light source, the higher the circadian factor and the stimulation of the "blue receptors" which are responsible for controlling the biological functions. When the artificial light adapts to the natural human biorhythm via the control of the colour temperature and intensity, positive effects can be achieved.

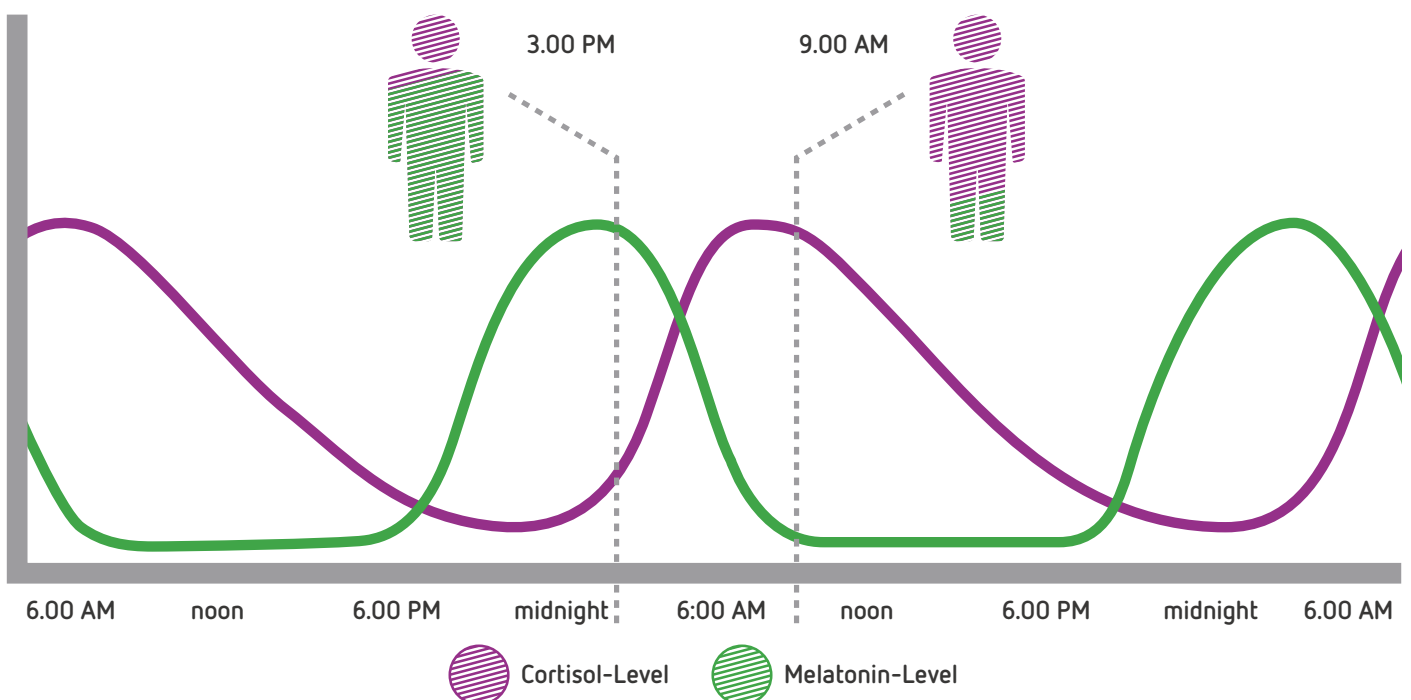
### Cortisol (hydrocortisone)

Hormone with stimulating effect on various bodily functions ("stress hormone").

### Melatonin

Hormone that signals "night rest" to the human body and makes us feel tired. Also referred to a "sleep hormone", it is produced from serotonin in the pineal gland and secreted during the night. It can be inhibited by exposure to light during the night.

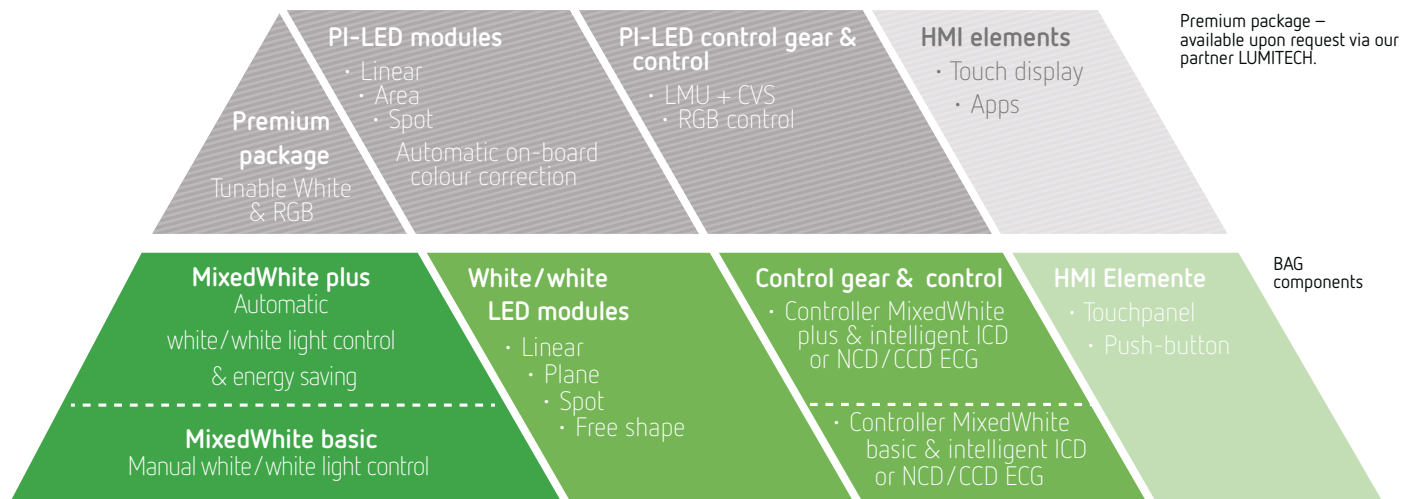
Source and additional information available at <http://www.licht.de> (lichtwissen, issue 19)



# Most straight-forward entry into Human Centric Lighting

Realising light applications cost-efficiently and goal-orientedly

Human Centric Lighting is the light of the future. And this future has already started today: BAG electronics is offering a complete system for a straight-forward and efficient entry into MixedWhite applications – from ECG via LED modules all the way to the Touchpanel for easy-to-use control.



## MixedWhite *basic* Manual system for circadian applications



The MixedWhite *basic* system includes the ECG, controller and LED modules with highly efficient warm-white and cold-white LEDs. The overall solution enables the realisation of white/white light controls for a manual operation via commercial push-buttons.

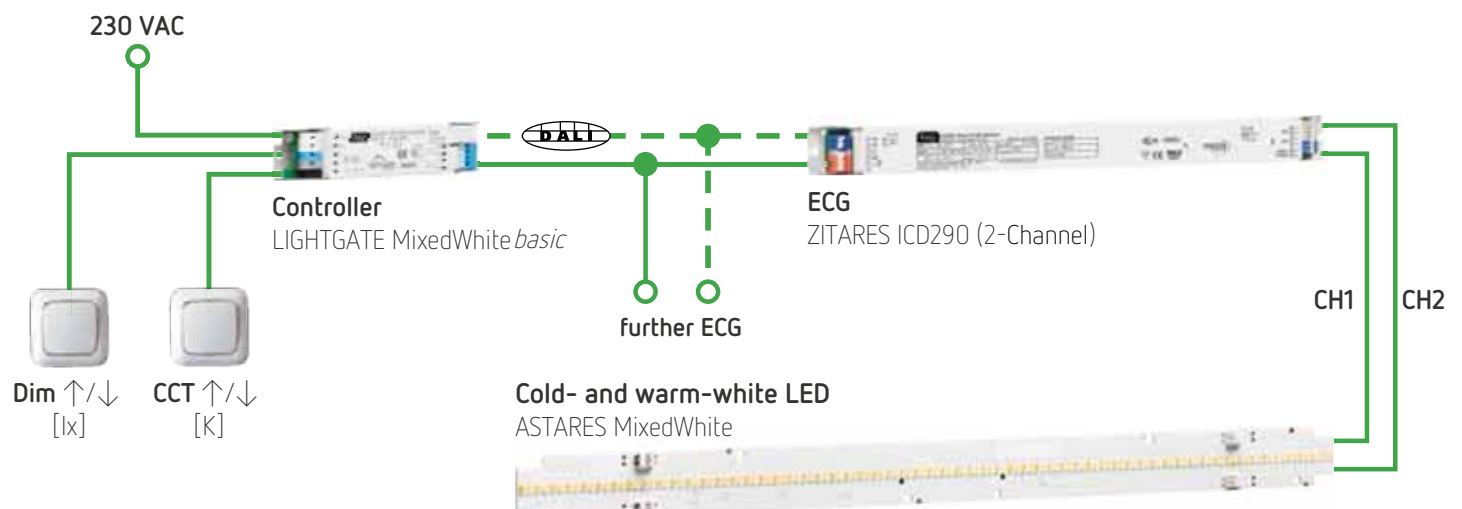
The core element of this system is the MixedWhite *basic* controller. It provides the option to adjust the brightness and colour temperature of the lighting system individually via wall push-buttons.

The two DALI interfaces of the controller enable the connection of

dimnable electronic gear units for the operation of LED modules with cold-white and warm-white LEDs. A particular advantage is provided by the combination of the ZITARES intelligent ECG with two independently controllable output channels.

**Sample applications**  
Health // Recovery room at the hospital  
Industry // Manufacturing halls in shift operation

### System design MixedWhite *basic* (example)



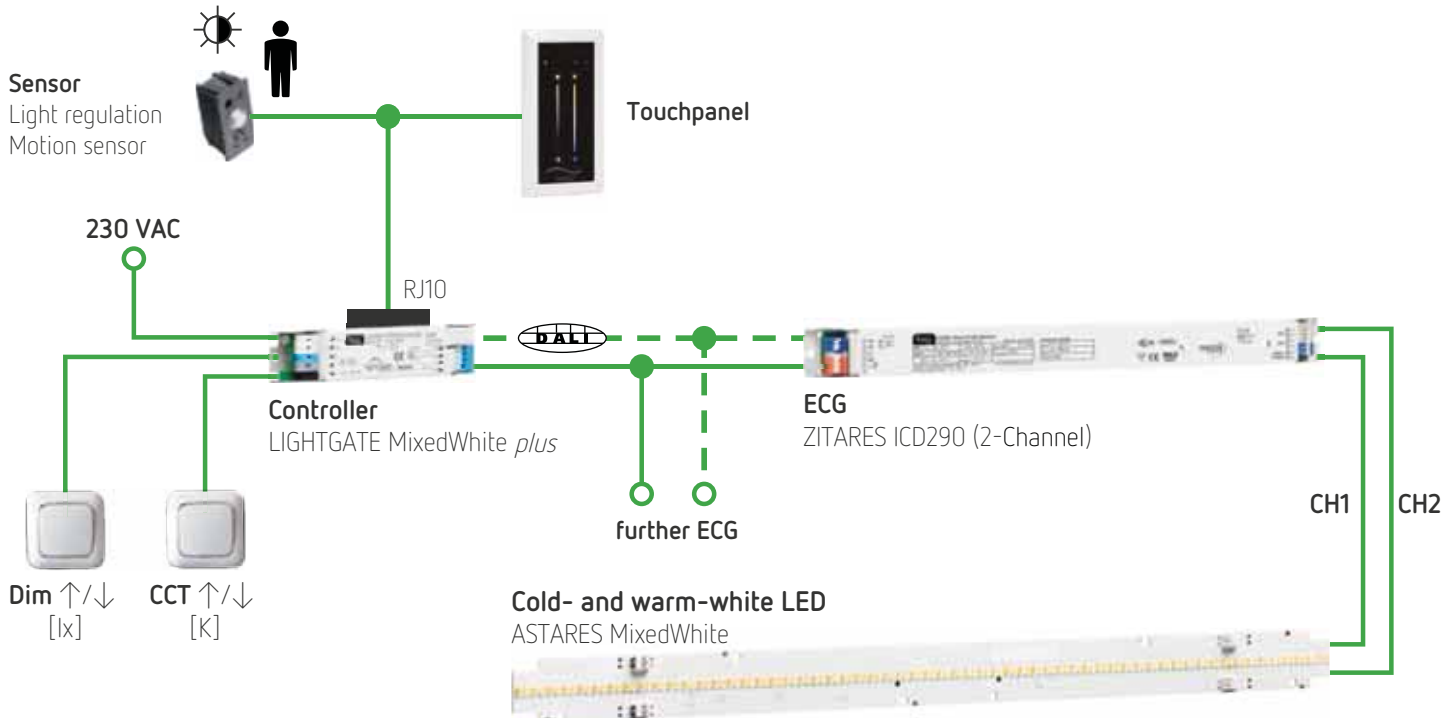
## Automatic systems with real-time clock for circadian light applications

MixedWhite *plus* is building upon the convincing properties of MixedWhite *basic*. This solution additionally includes a real-time clock which allows for the automatic progression of daylight-dependent characteristics with a change of the colour temperature – corresponding to the circadian rhythm. In combination with a sensor, additional energy savings can be achieved thanks to the daylight-dependent regulation and presence detection. Controlling this system is conveniently possible via push-button or Touchpanel.

### Optimally suited sample applications

- Health // Retirement/nursing homes, doctor's office
- Education // Classrooms and meeting rooms with incident daylight
- Office // Office work stations
- Rooms without incident daylight

### System design of MixedWhite *plus* (example)



### Programming daylight progressions via smartphone App

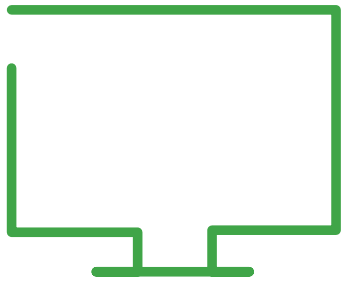
The handling of the system is just as easy as the system itself is convincing: The programming of circadian daylight progressions is possible comfortably and intuitively via smartphone App, thanks to the intelligent overall solution. The LIGHTGATE App by BAG (for iOS 8) makes the configuration of MixedWhite *plus* systems particularly easy.

The App includes options for the setting of colour temperature and brightness curves for the four seasons of the year, or a universal curve for the whole year, each dependent on the time of day or the position of the sun.

The transmission of the data takes place via flashes of light which are generated by the flash LED of the smartphone. Located on the Touchpanel as well as on the Clock-Module are light-sensitive receiver diodes which capture the signals and store them as parameters.



# — The fitting solution for any application

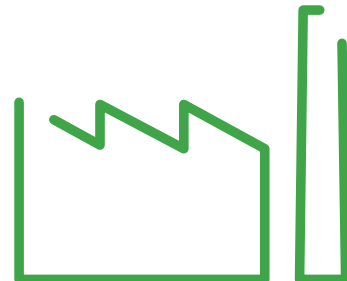


## Office & Commercial

---

### Light for modern office and work environments

Work environments are undergoing an enormous change: The increasing digitalisation of business processes puts increased pressures on the employees. However, those who spend a large part of the day in closed buildings can no longer listen to their internal clock. An intelligent lighting control based on circadian rhythms counters this. Large-format luminaires and brightened ceilings: a biologically effective illumination strengthens the well-being of humans at the workplace, makes them more alert and more focused, and prevents phases of exhaustion and tiring. This function is particularly important during the winter months which feature less light.



## Industry

---

### Light for industry and technology

In industry and manufacturing, multi-shift operations are a matter of course. The effects that changing work hours have on people's ability to perform and on their health is quite often being underestimated. More than few employees complain about bad sleep and tiredness during the day. Dynamic illumination scenarios for the general illumination can counter this effect in manufacturing. The result: employees are once again more focused and work more carefully. Especially in order to maintain focus during long night shifts, Human Centric Lighting can make an important contribution. Not only does this make production more efficient, but it does make it – more importantly – safer and more secure: Improved concentration does at the same time mean a lower risk for work accidents. Thus, the illumination can contribute to improved work safety.





## Education

---

### Light for healthy learning

In sleep mode to school: especially in the early lessons, a lot of students still lack concentration. An activating lighting prevents this effect. As a result, the young people are more awake and capable of higher performance in the morning; at the same time, the error rate drops significantly. These positive effects were proven in a Hamburg study in 2007/2008 and once more confirmed in 2012 by a study at two high schools in Ulm, Germany. The result: in rooms with a Human Centric Lighting illumination concept, students were significantly more focussed, they worked faster and showed better performance.



## Health

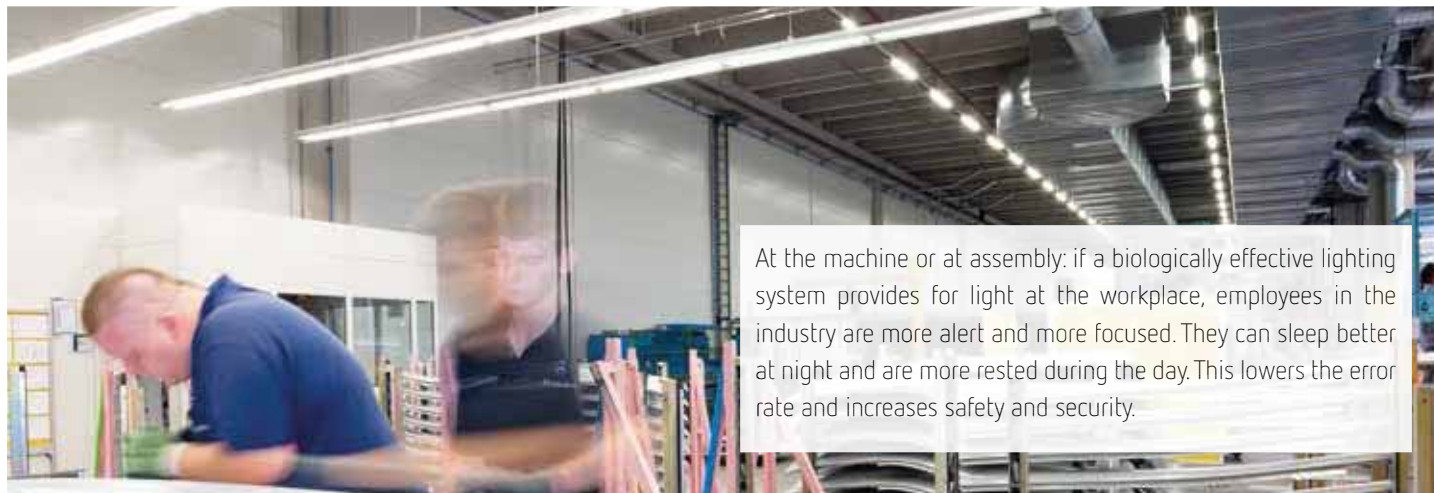
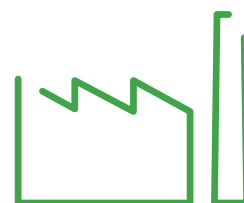
---

### Light for health and well-being

For sick people, light can be like medicine. To Date, only the surface has been scratched, at best, of which opportunities and perspectives applications of Human Centric Lighting are opening up in the healthcare and care sector. One example regarding this: during their hospital stay, patients only rarely get outside, or not at all. An illumination based on the circadian rhythm can counter this – both in regular hospital operation as well as in intensive care units where healthy light can additionally promote recovery. In care-giving, too, the impact of illumination is gaining importance in the support of natural sleep/ wake rythms of dementia patients in nursing homes.

# Application – production

Light in the industry –  
ideal daylight around the clock



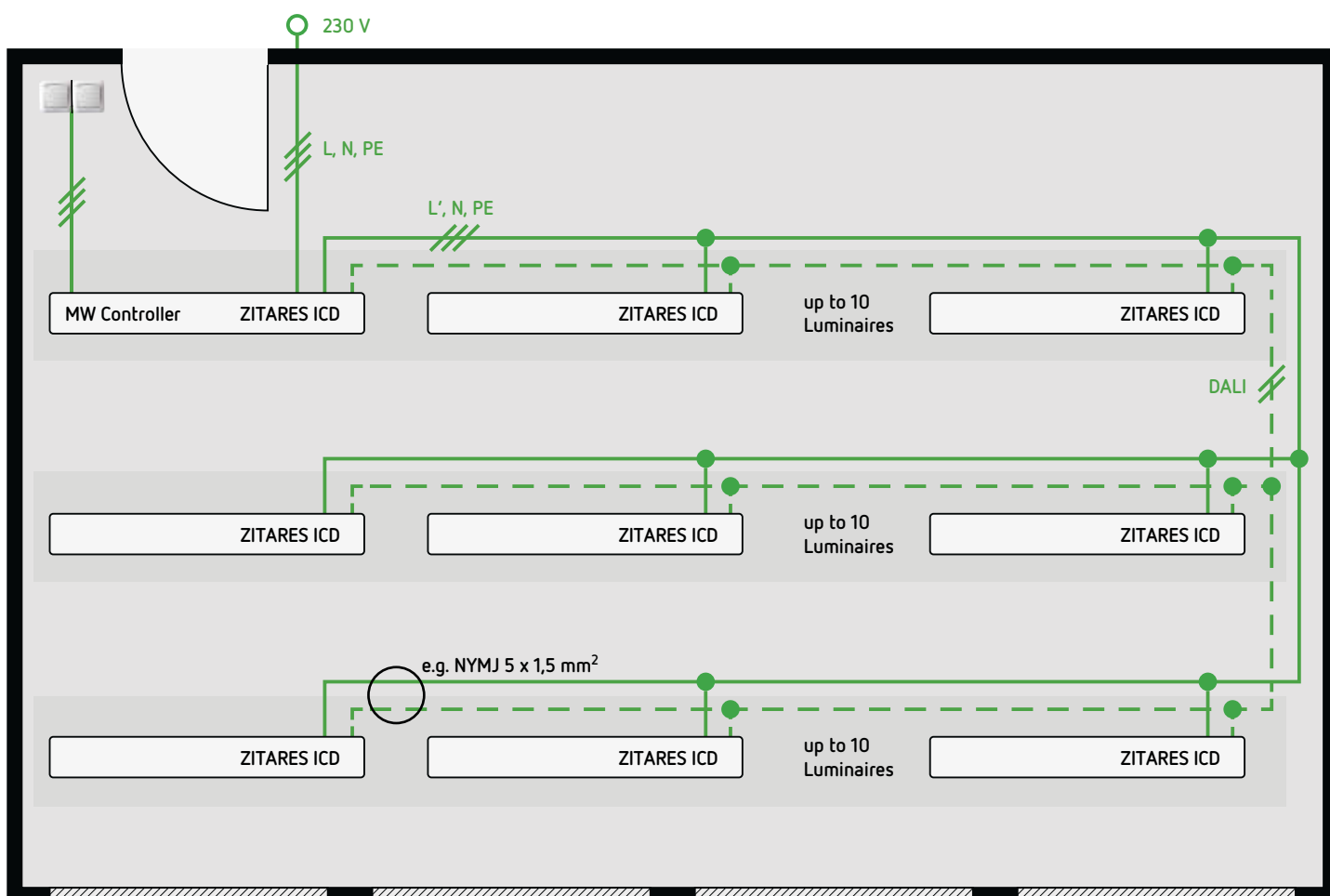
At the machine or at assembly: if a biologically effective lighting system provides for light at the workplace, employees in the industry are more alert and more focused. They can sleep better at night and are more rested during the day. This lowers the error rate and increases safety and security.

## Components of the sample application

- Controller MixedWhite *basic* Page: 22
- LED modules MixedWhite *linear* Page: 42
- ECG ZITARES ICD290 Page: 44

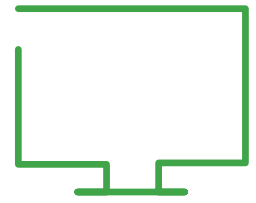
## Functions

- Manual light control via wall push-button:
  - On/Off
  - Dimming
  - Colour temperature



# Application – office

Light at the office –  
in compliance with your inner clock



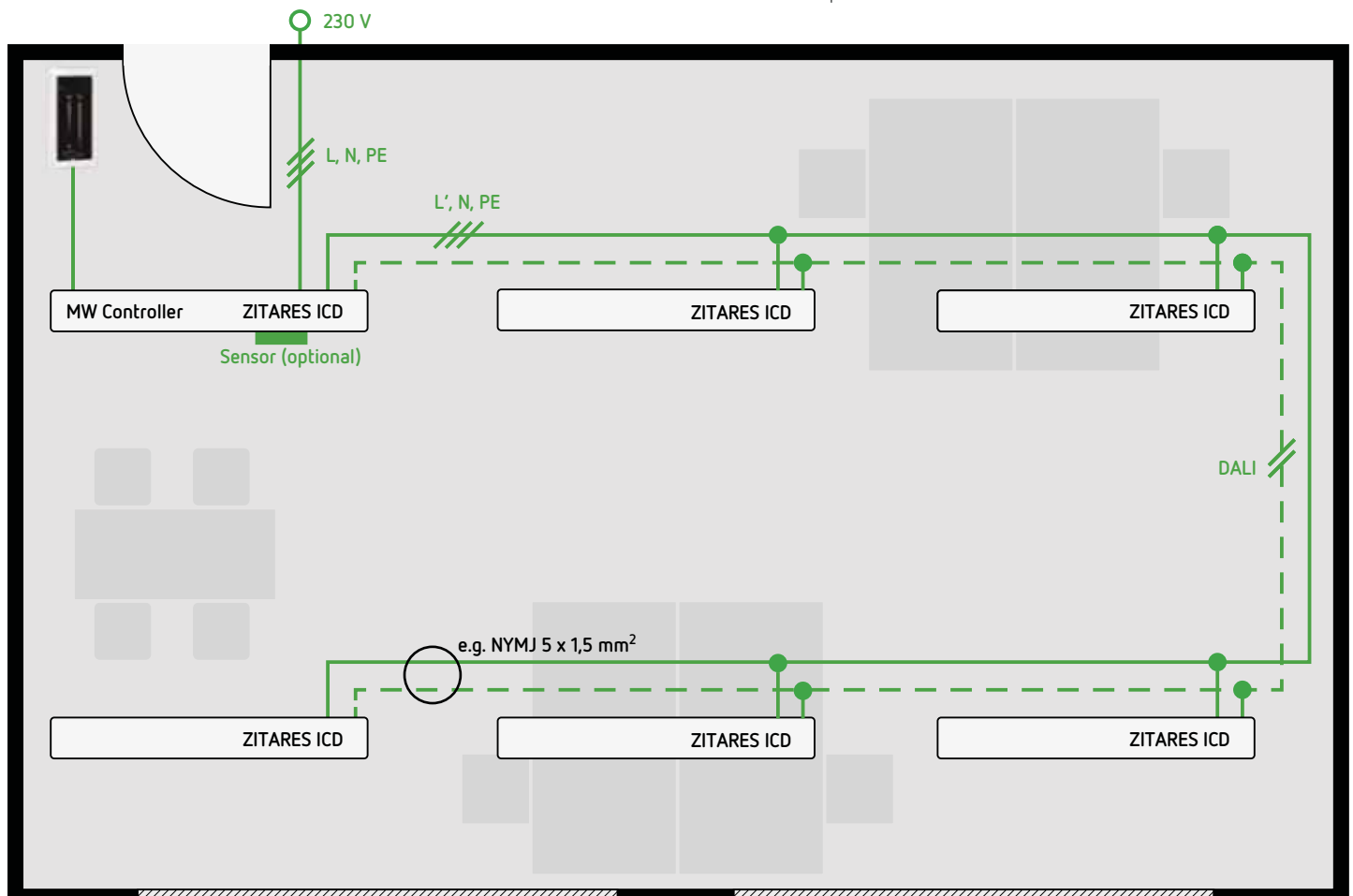
People in the industrialised world spend a large portion of the day in closed buildings. Modern light systems bring the daylight and its natural course into the office. The result: increased well-being, the ability to better concentrate, and healthier workplaces for tomorrow.

## Components of the sample application

- Controller MixedWhite *plus* Page: 24
- LED modules MixedWhite *linear* Page: 36
- Sensor MixedWhite *plus* Page: 30
- Touchpanel MixedWhite *plus* Page: 28
- ECG ZITARES ICD290 Page: 44

## Functions

- Automatic time-dependent control of the colour temperature
- Daylight-dependent regulation and presence-dependent switching
- Manual light regulation via Touchpanel
  - On/Off
  - Dimming
  - Colour temperature



# Application – classroom

Light in the classroom –  
Creating optimal learning conditions



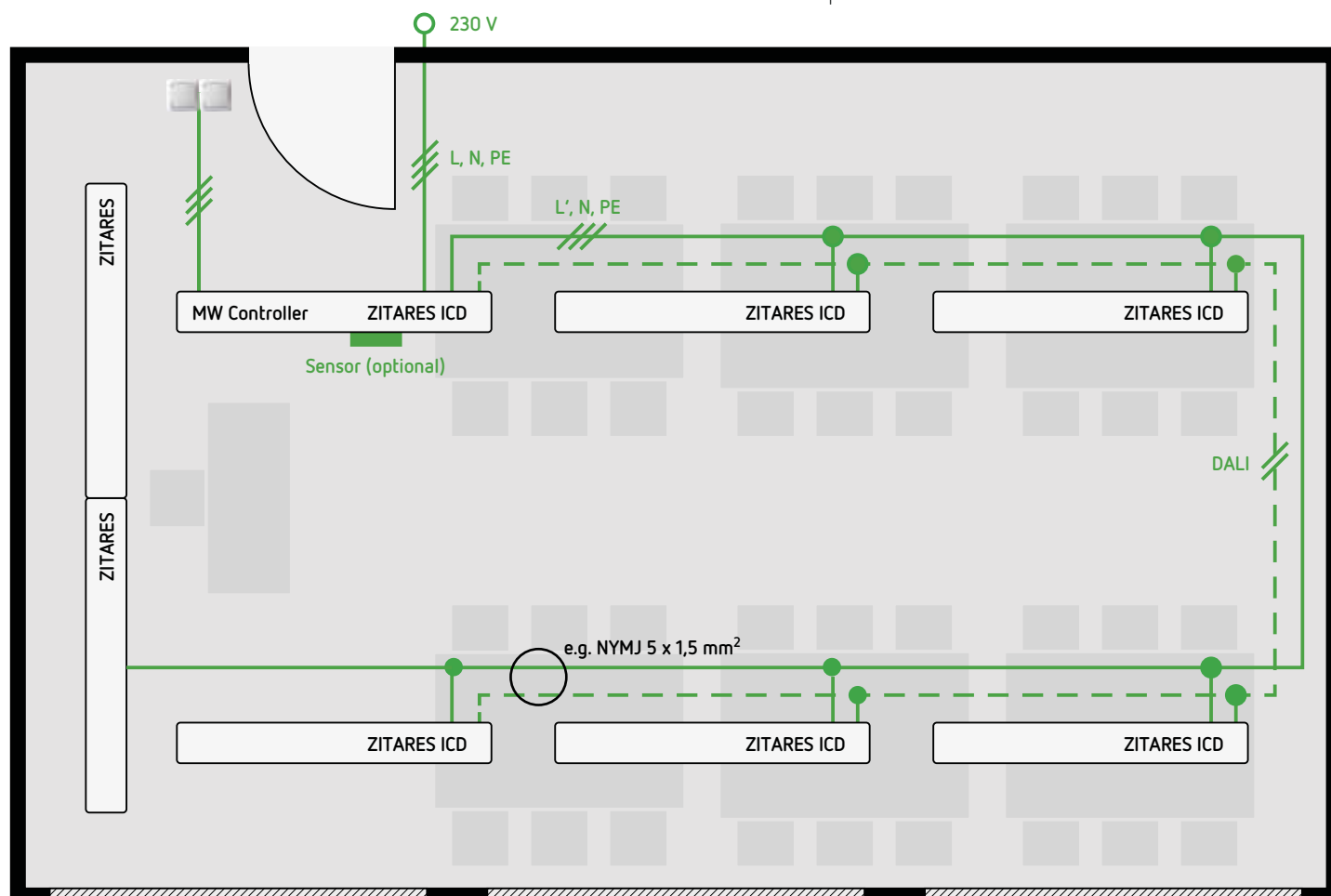
Those who learn need good light to see. Studies prove that a biologically effective illumination has a positive impact on the learning behaviour and helps students to work more attentively and more focused.

## Components of the sample application

- |  |          |
|--|----------|
| • Controller MixedWhite <i>plus</i>    | Page: 24 |
| • LED modules MixedWhite <i>linear</i> | Page: 40 |
| • Sensor MixedWhite <i>plus</i>        | Page: 30 |
| • Clock-Module MixedWhite <i>plus</i>  | Page: 26 |
| • ECG ZITARES ICD290                   | Page: 44 |

## Functions

- Automatic time-dependent control of the colour temperature
- Daylight-dependent regulation and presence-dependent switching
- Manual light control via wall push-buttons
  - On/Off
  - Dimming
  - Colour temperature





# Application – geriatric care

Light in clinic and care-giving,  
increasing well-being



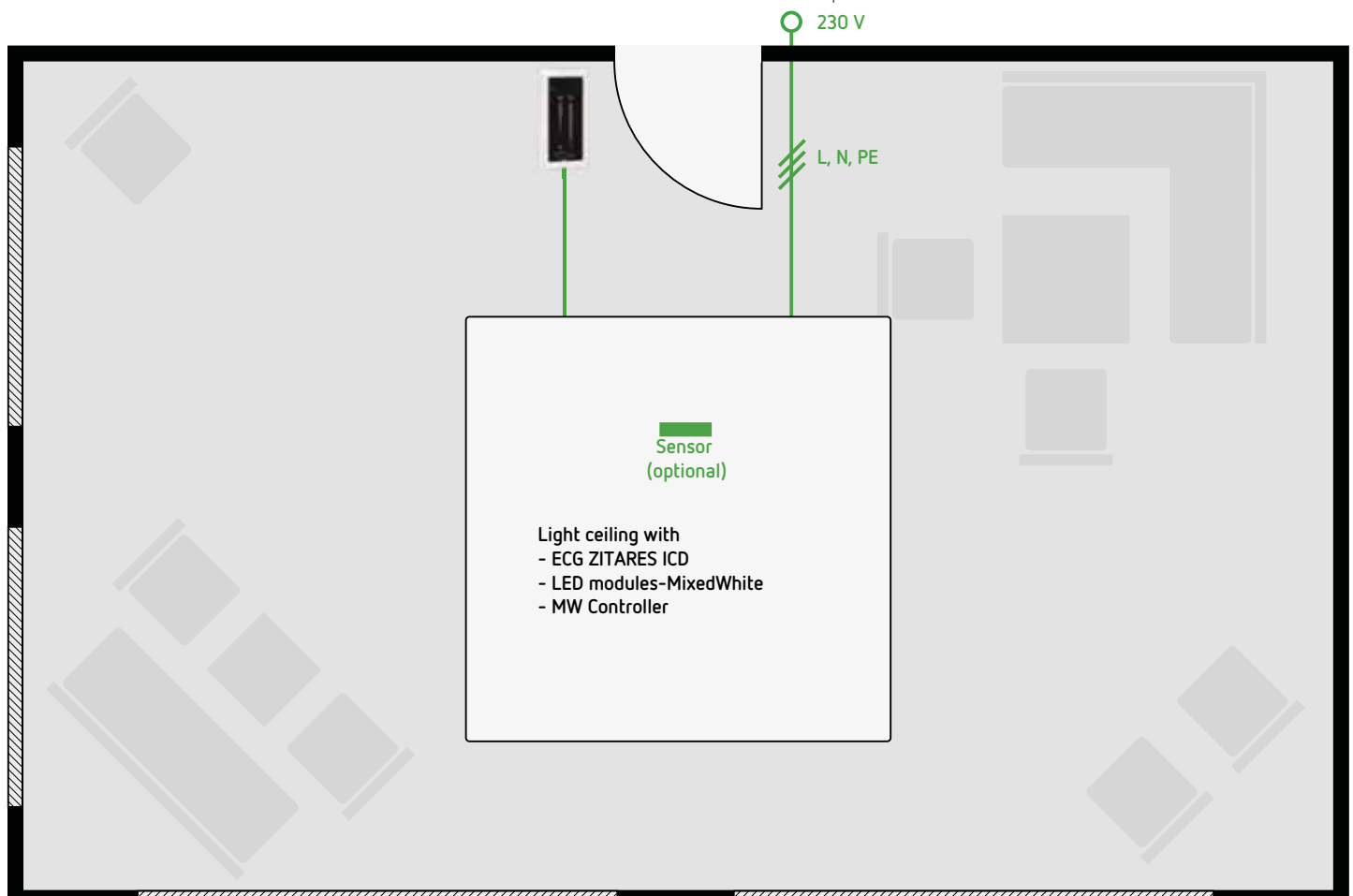
Healthy light is a blissful relief (not only) for sick people. An illumination that is adjusted to the course of the daylight supports the circadian rhythm, the emotional experience and the recovery of patients. In care-giving, too, a circadianly effective illumination sustainably supports the well-being of seniors and people suffering from dementia: the light activates during the day and promotes sleep at night. At the same time, optimal light conditions ease the work of the nursing staff.

## Components of the sample application

- Controller MixedWhite *plus* Page: 24
- LED modules MixedWhite *plane* Page: 34
- Sensor MixedWhite *plus* Page: 30
- Touchpanel MixedWhite *plus* Page: 28
- ECG ZITARES ICD290 Page: 44

## Functions

- Automatic time-dependent control of the colour temperature
- Daylight-dependent regulation and presence-dependent switching
- Manual light control via Touchpanel
  - On/Off
  - Dimming
  - Colour temperature



## Overview of ASTARES MixedWhite LED modules

Designation	Order number	Dimensions l x w mm	CCT		Operating current vs. luminous flux							
			K		mA	lm	mA	lm	mA	lm	mA	lm
LMC-MW/A-110-827.865-01/L25W25	10132585	250 x 250	2.700		350	600	500	860	700	1.200	900	1.500
			6.500			650		910		1.250		1.600
LMC-MW/B-110-827.865-01/L28W4	10132586	280 x 40	2.700		700	925	850	1.100	900	1.160	1.050	1.300
			6.500			925		1.100		1.160		1.300
LMC-MW/B-200-827.865-01/L56W4	10132587	560 x 40	2.700		700	1.850	850	2.200	900	2.300	1.050	2.600
			6.500			1.850		2.200		2.300		2.600
LMC-MW/C-110-827.865-01/L28W2	10132588	280 x 24	2.700		300	800	450	1.150	500	1.300		
			6.500			850		1.200		1.350		
LMC-MW/D-110-827.865-01/L28W2	10134535	280 x 24	2.700		700	800	800	1.050	900	1.150		
			6.500			850		1.150		1.200		
LMC-MW/D-200-827.865-01/L56W2	10134537	560 x 24	2.700		700	1.600	800	2.100	900	2.300		
			6.500			1.700		2.100		2.400		
LMC-MW/E-150-827.865-01/L28W6	10134536	280 x 55	2.700		700	875	900	1.100	1.000	1.200		
			6.500			925		1.175		1.275		



LED/light colour pcs.	LED layout	Max. admissible current/light colour mA	Max. admissible total current/module mA	Operating voltage/light colour V	Creepage and clearance distances* V	Page
60		1.050	2.100	10 ... 13	max. 60	34
30		1.050	1.600	8.5 ... 9.5	max. 120	36
60		1.050	1.600	17 ... 19	max. 120	36
30		500	600	16 ... 18.5	max. 250	38
30		900	1.000	8.5 ... 9.5	max. 60	40
60		900	1.000	17 ... 19	max. 60	40
33		1.000	1.400	8 ... 10	max. 60	42

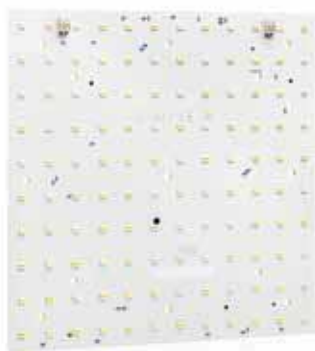
\* Creepage and clearance distances on the module have been designed for the stated maximum voltage



## Sample system configurations for standard luminaires

Luminaire geometry	Typical luminous flux (module level)	Module series	LED module configuration
Length: 1,500 mm	5,500 lm	<b>B series</b> Width: 40 mm	2 x LMC-MW/B-200-827.865-01/L56W4 10132587 <b>Page 36</b> + 1 x LMC-MW/B-110-827.865-01/L28W4 10132586 <b>Page 36</b>
	5,500 lm	<b>C series</b> Width: 24 mm	5 x LMC-MW/C-110-827.865-01/L28W2 10132588 <b>Page 38</b>
	5,500 lm	<b>D series</b> Width: 24 mm	2 x LMC-MW/D-200-827.865-01/L56W2 10134537 <b>Page 40</b> + 1 x LMC-MW/D-110-827.865-01/L28W2 10134535 <b>Page 40</b>
	7,500 lm	<b>E series</b> Width: 55 mm	5 x LMC-MW/E-150-827.865-01/L28W6 10134536 <b>Page 42</b>
Length: 1,200 mm	4,400 lm	<b>B series</b> Width: 40 mm	2 x LMC-MW/B-200-827.865-01/L56W4 10132587 <b>Page 36</b>
	4,400 lm	<b>C series</b> Width: 24 mm	4 x LMC-MW/C-110-827.865-01/L28W2 10132588 <b>Page 38</b>
	4,400 lm	<b>D series</b> Width: 24 mm	2 x LMC-MW/D-200-827.865-01/L56W2 10134537 <b>Page 40</b>
	6,000 lm	<b>E series</b> Width: 55 mm	4 x LMC-MW/E-150-827.865-01/L28W6 10134536 <b>Page 42</b>
Length x width: 600 x 600 mm	4,800 lm	<b>A series</b> 250 x 250 mm	4 x LMC-MW/A-110-827.865-01/L25W25 10132585 <b>Page 34</b>

The stated luminous fluxes are typical values. The whole range of possible luminous fluxes of the LED modules can be found on the product pages and in the complete overview on pages 18-19.



**ASTARES MixedWhite A series**  
LED modules in plane design, SELV

Additional information on page 34



**ASTARES MixedWhite B series**  
LED modules in linear, wide design, SELV

Additional information on page 36



LED assembly CCT / CRI	Recommended dimming ECG	Topology	ECG dimensions l x w x h mm
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21
2,700 K & 6,500 K / > 80	2 x NCD140-70FX-20/220-240/DALI 10116488 Page 48	Non-SELV	280 x 30 x 21
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21
2,700 K & 6,500 K / > 80	2 x NCD140-70FX-20/220-240/DALI 10116488 Page 48	Non-SELV	280 x 30 x 21
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21
2,700 K & 6,500 K / > 80	1 x ICD290-100LS-01/220-240/DALI 10105906 Page 44	SELV	360 x 30 x 21

A multitude of additional configurations for the wide variety of applications can also be realised with the named ASTARES LED modules and the matching ZITARES ECG.

For individual requirements, we can provide you with customised LED modules as a service. Additional information on page 33



### ASTARES MixedWhite C series

LED modules in linear, slim design, non-SELV

Additional information on page 38



### ASTARES MixedWhite E series

LED modules in rectangular design, SELV

Additional information on page 42

### ASTARES MixedWhite D series

LED modules in linear, slim design, SELV

Additional information on page 40

# LIGHTGATE MixedWhite basic

## DALI controller for operation of luminaires for white/white applications

Industry	● ● ○ ○ ○
Office & Commercial	● ● ● ○ ○
Education	● ● ● ○ ○
Health	● ● ● ○ ○



### Performance characteristics

- Controller for manual control of 2 DALI groups with the operating modes:
  - MixedWhite:  
For the connection of two push-buttons with the functions: Setting of colour temperature, light level and On/Off
  - Single circuit:  
For the connection of two push-buttons for individual dimming and switching of the two DALI groups
- 2 DALI interfaces for connecting DALI dimmable ECG (device type 6)
  - Broadcast operation:  
Operation of 2 DALI groups with separated control lines and without addressing of the ECG; max. 16 ECG per group
  - Addressing operation:  
Operation of 2 DALI groups via the same interface with joint control line and addressing of the ECG; max. 16 ECG per DALI output
- Integrated relay for switching the mains voltage supply of the connected ECG and for reducing the stand-by power loss
- Straight-forward selection of the operating modes via DIP switches
- Special function "automatic addressing":  
In combination with the ECG versions of the ZITARES ICD290, with 2 separately controllable output channels and 2 DALI addresses, the addressing is performed automatically by the controller

### General technical data

Mains voltage supply	
Rated voltage range	220 ... 240 [V]
Rated frequency	0 / 50 ... 60 [Hz]
Admissible continuous voltage range	175 ... 280 [V]
Switching capacity of the relay	max. 1,000 VA
DALI interfaces	
Quantity	2
Max. number of DALI ECG per interface	16
Connector terminals	
Version	90° terminals with push-button
Wire cross section	0.5 mm <sup>2</sup> – 1.5 mm <sup>2</sup>
Wire stripping length	7.5 – 8.5 mm
Lifetime	
Operation at tc = tc,max	50,000 h; Failure rate ≤ 10 %
Operation at tc = tc,max - 10 K	100,000 h; Failure rate ≤ 10 %
Degree of protection	
Degree of protection housing	IP20

5 YEARS warranty

### Conformity

EN 61347-1  
EN 61347-11  
EN 55015  
EN 61547

### Markings



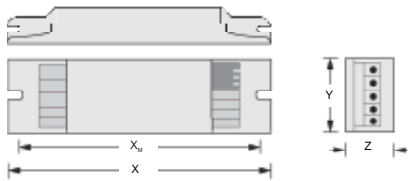
## Order data

Designation	Order number
LGC-MW-01/L/basic	10121941

## Dimensions | weights | temperatures

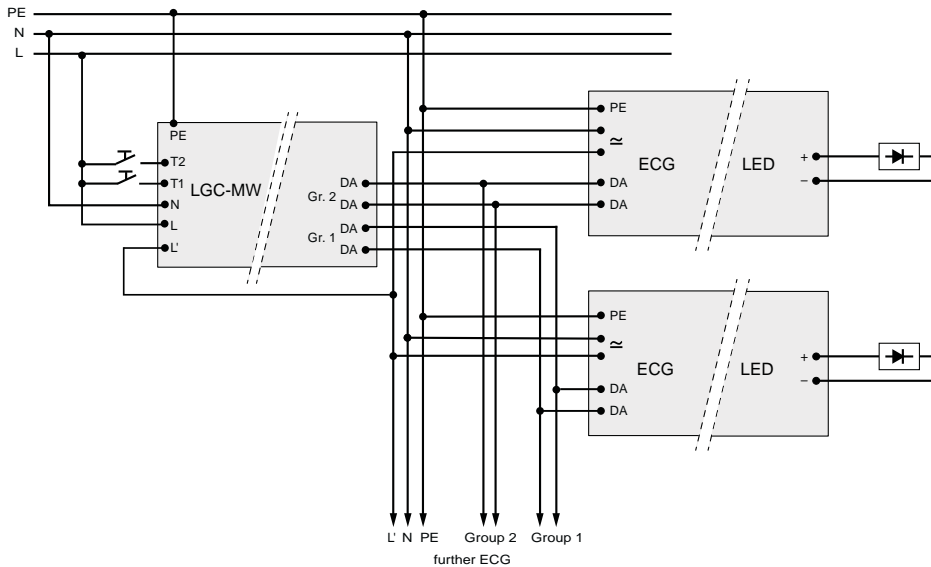
Designation	Length X	Width Y	Height Z	Distance of holes $X_M$	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$
	mm	mm	mm	mm	kg	°C	°C
LGC-MW-01/L/basic	130	30	21	120	0.090	0...60	70

## Case drawing

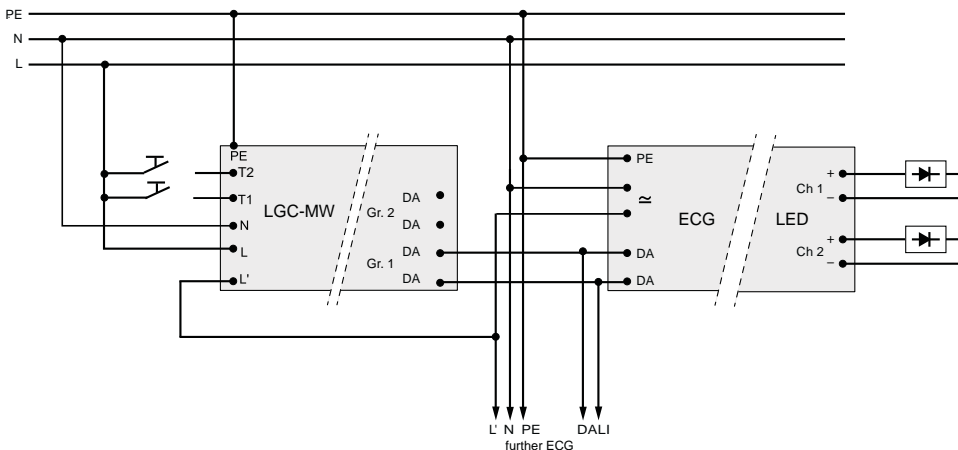


## Wiring diagrams

### 1 Broadcast operation: Control of the ECG via separate DALI control lines without addressing



### 2 Addressing mode: Control of 2 groups via joint DALI control lines and ECG addressing



Example:  
ZITARES ICD290, 1 ECG with 2 DALI addresses  
and 2 separately controllable output channels

# LIGHTGATE MixedWhite plus

## DALI controller for operation of luminaires for white/white applications

Industry	● ● ● ● ●
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ●
Health	● ● ● ● ●



### Performance characteristics

- Controller for automatic and manual control of luminaires for white/white applications
- 2 DALI interfaces for connecting DALI dimmable ECG (device type 6)
  - Broadcast operation:  
Operation of 2 DALI groups with separated control lines and without addressing of the ECG; max. 16 ECG per group
  - Addressing operation:  
Operation of 2 DALI groups via the same interface with joint control line and addressing of the ECG; max. 16 ECG per DALI output
- Manual control of lighting system via:
  - Touchpanel and/or commercial push-button
- Automatic control of colour temperature via real-time clock in combination with:
  - Touchpanel TP-MW-01/W/WM or
  - Clock-Module LGT-MW-01/L
- Optional connection of a sensor for additional energy saving
  - Daylight-dependent regulation and/or
  - Presence detection
- Integrated relay for switching the mains voltage supply of the connected ECG and for reducing the stand-by power loss
- Straight-forward connection of system components via RJ10 plug: sensor, Touchpanel, Clock-Module
- Connection of up to 3 Touchpanels for parallel operation
- Special function "automatic addressing":  
In combination with the ECG versions of the ZITARES ICD290, with 2 separately controllable output channels and 2 DALI addresses, the addressing is performed automatically by the controller

### General technical data

Mains voltage supply	
Rated voltage range	220 ... 240 [V]
Rated frequency	0 / 50 ... 60 [Hz]
Admissible continuous voltage range	175 ... 280 [V]
Switching capacity of the relay	max. 1,000 VA
DALI interfaces	
Quantity	2
Max. number of DALI ECG per interface	16
Connector terminals	
Version	90° terminals with push-button
Wire cross section	0.5 mm <sup>2</sup> – 1.5 mm <sup>2</sup>
Wire stripping length	7.5 – 8.5 mm
Lifetime	
Operation at tc = tc,max	50,000 h; Failure rate ≤ 10 %
Operation at tc = tc,max - 10 K	100,000 h; Failure rate ≤ 10 %
Degree of protection	
Degree of protection housing	IP20

5 YEARS warranty

### Conformity

- EN 61347-1
- EN 61347-11
- EN 55015
- EN 61547

### Markings



### Installation App





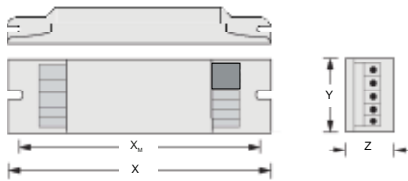
## Order data

Designation	Order number
LGC-MW-01/L/plus	10122137

## Dimensions | weights | temperatures

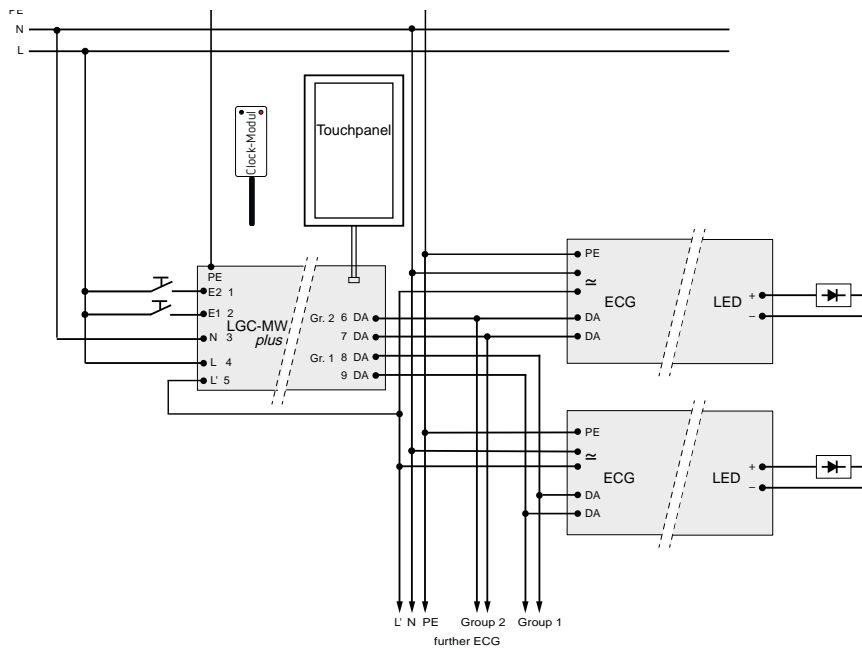
Designation	Length X	Width Y	Height Z	Distance of holes $X_M$	Weight kg	Ambient temperature $t_a$	Housing temperature $t_{c,max}$
	mm	mm	mm	mm		°C	°C
LGC-MW-01/L/plus	130	30	21	120	0.090	0...60	70

## Case drawing

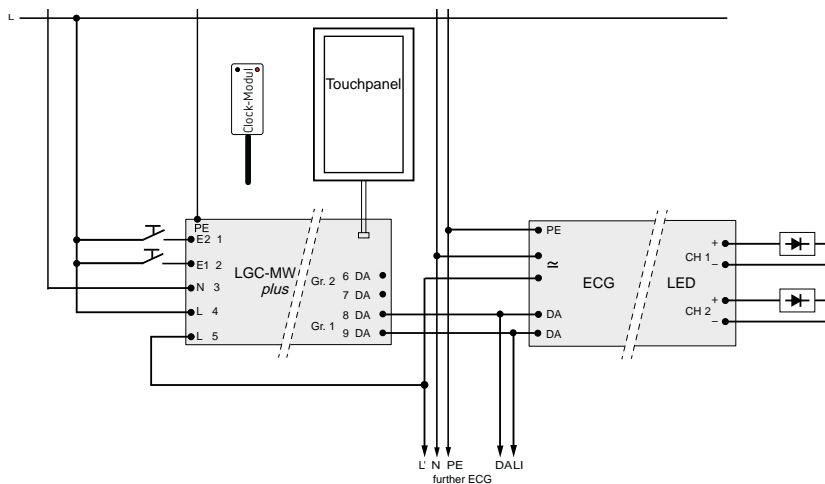


## Wiring diagrams

1 Broadcast mode: Control of ECG via separate DALI control lines without addressing



2 Addressing mode: Control of 2 groups via joint DALI control lines and ECG addressing



Example:  
ZITARES ICD290, 1 ECG with 2 DALI addresses  
and 2 separately controllable output channels

# LIGHTGATE MixedWhite *plus*

## Clock-Module for real-time control of white /white applications

Industry	● ● ● ● ●
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ●
Health	● ● ● ● ●



### Performance characteristics

- Clock-Module with real-time clock for connection to the MixedWhite *plus* controller via RJ10 plug
- Straight-forward programming of circadian real-time flows via smartphone App; the configuration is carried out via an integrated photo diode
- Factory settings include a standard set of parameters; these can be adjusted and reviewed at any time via the App
- Integrated battery for data protection in case of a power failure; replaceable
- Small form factor and low weight for easy integration of the module into luminaires

### General technical data

<b>Voltage supply</b>	
Supply voltage	9 - 24 VDC SELV
Current consumption	max. 15 mA
<b>Real-time clock</b>	
Deviation per year	max. ± 2 minutes
<b>Connection</b>	
Connection to controller MixedWhite plus	RJ10 plug, (cable length 140 mm)
Max. permitted cable length	30 m (2 x 2 x 0.8 mm <sup>2</sup> )
<b>Lifetime</b>	
Operation at $t_a$ , max = 45 °C	100,000 h; Failure rate ≤ 10 %
Lifetime of battery	10 years in operation
Lifetime of battery	1 year in storage
<b>Degree of protection</b>	
Degree of protection housing	IP20

**5 YEARS**  
warranty

### Conformity

EN 61347-1  
EN 61347-11  
EN 61547  
EN 55015

### Markings



### Installation App



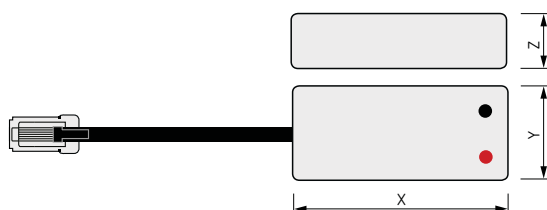
## Order data

Designation	Order number
LGT-MW-01/L	10122726

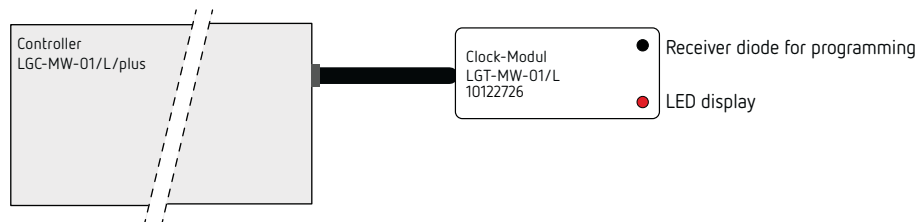
## Dimensions | weights | temperatures

Designation	Length X	Width Y	Height Z	Weight	Ambient temperature t <sub>a</sub>
	mm	mm	mm	kg	°C
LGT-MW-01/L	51	26	15	0.016	-10...45

## Case drawing



## Wiring diagram



## Connection notes

- Maximum one Clock-Module per controller
- In addition, a sensor can be connected via a two-way distributor

# LIGHTGATE MixedWhite *plus*

## Touchpanel for controlling colour temperature and brightness

Industry	● ○ ○ ○ ○
Office & Commercial	● ● ● ● ●
Education	● ○ ○ ○ ○
Health	● ● ● ● ○



\* GIRA Standard installation frame (included in delivery)



### Performance characteristics

- Touchpanel with real-time clock for connection to the MixedWhite *plus* controller
- Straight-forward programming of circadian real-time courses via smartphone App; the configuration is carried out via an integrated photo diode
- Factory setting includes a standard set of parameters; these can be adjusted and reviewed at any time via the App
- Touch-sensitive surface for intuitive operation, with the functions:
  - On / Off
  - Setting of colour temperature
  - Setting of luminous intensity
  - Activating / deactivating automatic circadian cycles
- Operating modes:
  - Automatic mode  
The lighting is controlled in dependence on the time of day, calculated position of the sun and/or sensor-controlled
  - Manual mode  
Brightness and colour temperature of the lighting can be adjusted via corresponding keypad, individually and at any time.
- Integrated battery for data protection in case of a power failure; replaceable

### General technical data

Voltage supply	
Supply voltage	9 - 24 VDC SELV
Current consumption	max. 30 mA
Real-time clock	
Deviation per year	max. ± 2 minutes
Installation	
Wall-mounting	with included fastening ring on standard flush device boxes
Connection	
Type of connection	4-pole plug terminal; max. 0.8 mm <sup>2</sup> rigid, 6 mm stripped
Max. permitted cable length from controller to Touchpanel	100 m (2 x 2 x 0.8 mm <sup>2</sup> )
Lifetime	
Operation at t <sub>a</sub> , max = 45 °C	100,000 h; Failure rate ≤ 10 %
Lifetime of battery	10 years in operation
Lifetime of battery	1 year in storage
Degree of protection	
Degree of protection housing	IP20

5 YEARS warranty

### Conformity

EN 55011  
EN 61547

### Markings



### Installation App



## Order data

Designation	Order number	Scope of delivery
TP-MW-01/W/WM	10122139	Touchpanel GIRA mounting frame, white Adapter plate flush device box – Touchpanel Plug connector (Phoenix PTSM) for line 2x2x0.8 mm <sup>2</sup> Connection adapter line RJ10 socket Connecting line with RJ10 plug at both ends, length: 0.2 m

## Dimensions | weights | temperatures

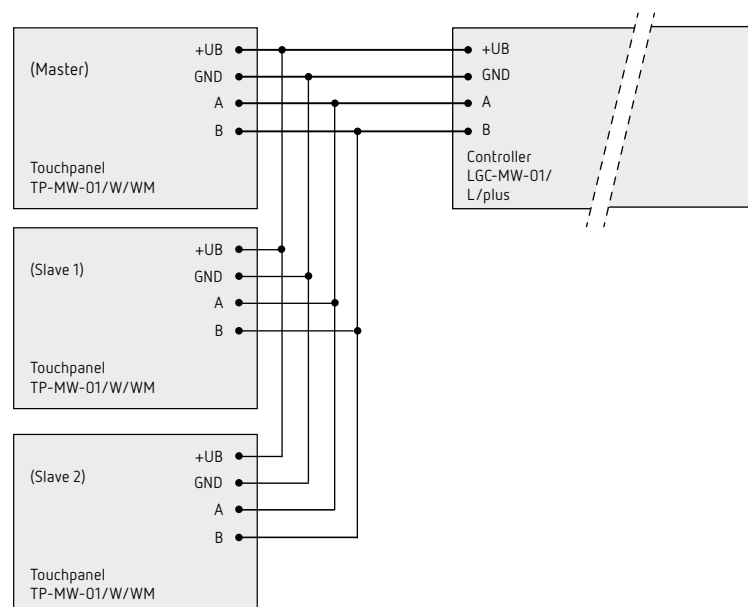
Designation	Length X	Width Y	Height Z	Humidity	Weight	Ambient temperature t <sub>a</sub>
	mm	mm	mm	%	kg	°C
TP-MW-01/W/WM	127	55,6	22	1... 90 Relative humidity, non-condensing	0.12	-10...45

Dimensions with GIRA Standard installation frame: L 160 mm x W 90 mm x H 23 mm

## Case drawing



## Wiring diagram



## Connection notes

- It is not possible to connect multiple controllers to one Touchpanel
- Up to 3 Touchpanels may be connected to one controller
- The setting "Master" resp. "Slave" is carried out via DIP switches at the respective Touchpanel



# LIGHTGATE MixedWhite *plus*

## Sensor for presence detection and daylight-dependent regulation

Industry	● ○ ○ ○ ○
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ●
Health	● ● ● ○ ○



### Performance characteristics

- Sensor for connection to the MixedWhite *plus* controller via RJ10 plug
- Integrated light sensor for daylight-dependent regulation of one group of luminaires
- The determined value configuration for the daylight-dependent regulation can be performed either via integrated push-buttons or via the MixedWhite *plus* Touchpanel or via commercial wall push-buttons
- Integrated presence detector for automatic switching of one group of luminaires with the optional operating modes:
  - Automatic: Switching on and off automatically
  - Semi-automatic: Switching off automatically, manual switching on required

Selection of operating mode and setting of the switch-off delay-time via smartphone App

- Small form factor and low weight for easy integration of the sensor into luminaires

### General technical data

Voltage supply	
Supply voltage	9 ... 24 [VDC], supply via MixedWhite <i>plus</i> controller
Current consumption	typ. 20 mA
Sensor functions	
Light sensor	2 ... 400 [lx], measured at the sensor
Presence detector	Detection area Ø 5 m at 2.7 m height of installation
Connection	
Connecting line at the sensor, pre-assembled	4-core connecting line with RJ10 plug, length: 1.5 m
Max. permitted cable length between sensor and controller	100 m
Lifetime	
Operation at $t_a$ , max = 65 °C	100,000 h; Failure rate ≤ 10 %
Degree of protection	
Degree of protection housing	IP20

5 YEARS warranty

### Conformity

EN 61347-1  
EN 61347-11  
EN 55015  
EN 61547

### Markings



### Installation App



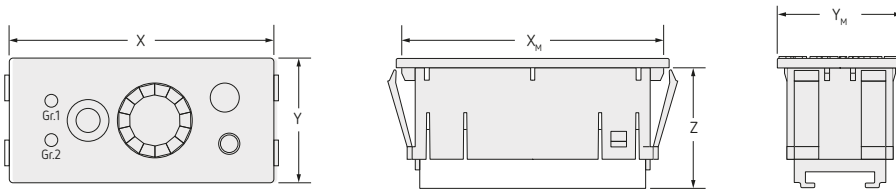
## Order data

Designation	Order number	Scope of delivery
LGS-PL-01/MW/M	10122138	Sensor RJ10 two - way distributor Settings tool

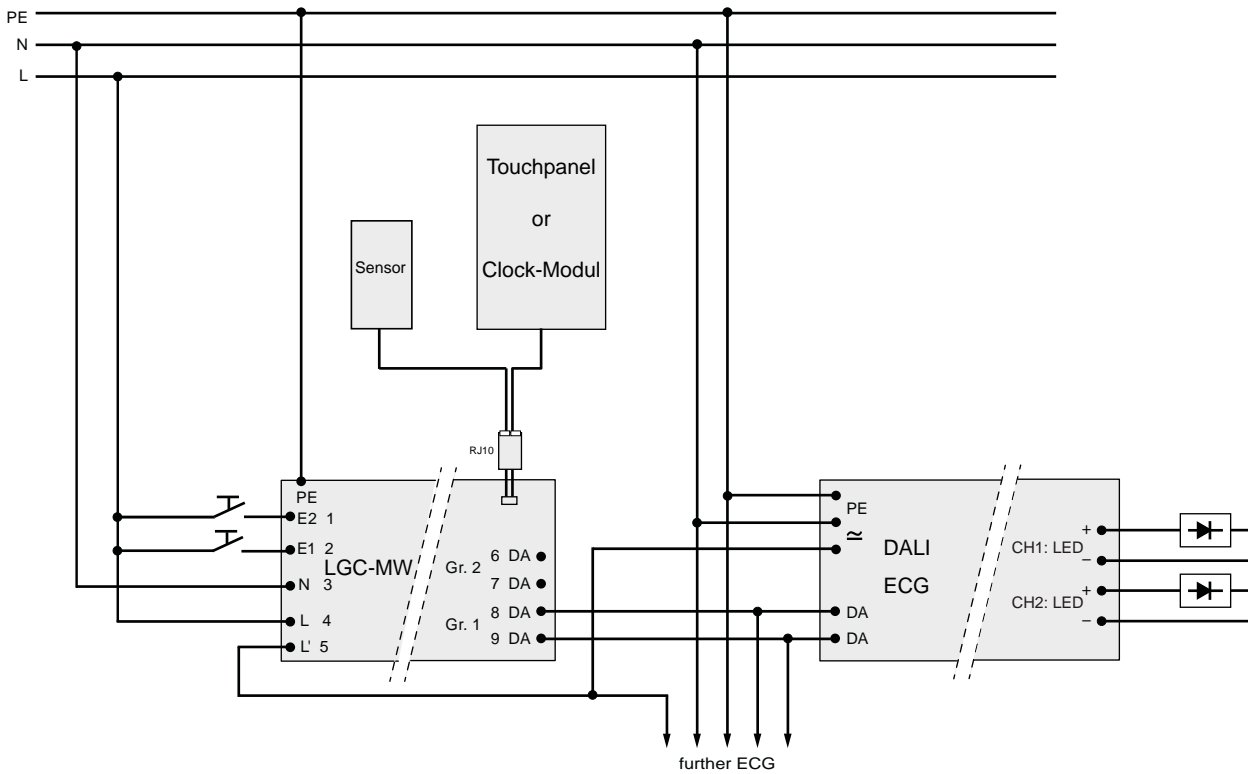
## Dimensions | weights | temperatures

Designation	Length X	Width Y	Height Z	Length X <sub>M</sub>	Width Y <sub>M</sub>	Weight	Ambient temperature t <sub>a</sub>
	mm	mm	mm			kg	°C
LGS-PL-01/MW/M	44	42.2	20	42.2	17.5	0.016	-10...65
Mounting cut-out	42.5		18.5				

## Case drawing



## Wiring diagram



# Installation App

## LIGHTGATE MixedWhite *plus*



### Programming made easy

This is how easy the programming of circadian light applications can be: You can specify colour progressions and illumination intensities customised to your needs comfortably and intuitively via smartphone App. The free of charge LIGHTGATE App (available for iOS 8) makes MixedWhite applications even easier and more efficient. In combination with the LIGHTGATE Touchpanel or the Clock-Module from BAG, they bring the course of daylight to interior rooms.

### Intuitive and time-saving user-guidance

The LIGHTGATE App allows for the programming of adjusted curves for the four seasons (absolute or dependent on the position of the sun), the configuration of a universal curve for the whole year, as well as defined operating hours, dependent on the day of the week and the time. Furthermore, the tool allows for adjusting additional system functions such as the work mode of the presence detection when sensors are used, various push-button functions, and fading times for the dimming of the illumination.

### Parameter transmission via flashing of light

Just as varied as the programming options are, as easy is the handling: First, the desired parameters of the system are set in the LIGHTGATE App. Subsequently, the transmission of the data takes place via flashes of light which are generated by the flash LED of the smartphone. Located on the Touchpanel as well as on the Clock-Module are, in turn, light-sensitive receiver diodes which capture the signals.

### An overall system that is convincing all around

At the core of the MixedWhite solution is the MixedWhite *plus* controller in interaction with the ASTARES MixedWhite LED modules and the ZITARES intelligent ECG, which - with two output channels that can be controlled independent from one another - allow for a cost-efficient implementation. With this overall system, the BAG components allow for the quick and easy-to-use realisation of Human Centric Lighting solutions. You can achieve an even higher energy efficiency thanks to the daylight-dependent regulation in combination with a presence detection.

#### At a glance!

- Programming of circadian light courses
- Configuration of adjusted curves for the 4 seasons (absolute or dependent on the position of the sun)
- Configuration of a universal curve for the whole year
- Defined operating hours, dependent on the day of the week and the time
- Mode of operation of the presence detection
- Configuration of push-button functions
- Defined fading times for dimming
- Choice of colour temperatures of the LEDs used

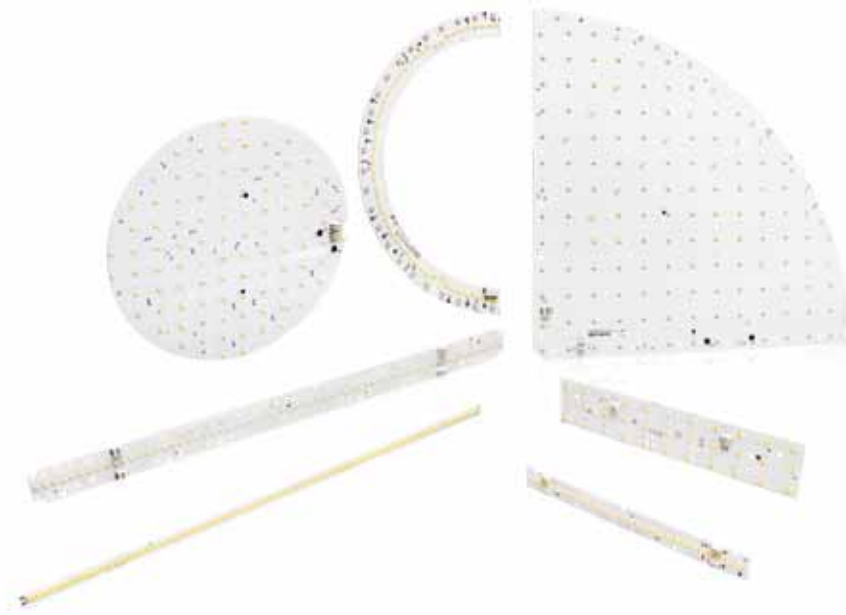
### Installation App

To download the iPhone software from the AppStore now, search for: Lightgate MW



# Project service LED modules

## Customised, from Germany



### Your project – our solution

Are you looking for the optimal LED module for your application? Just ask us! We make your project a success – efficiently, targetedly, and quickly. We are focussing our expertise in sophisticated lighting electronics and our comprehensive engineering and development resources solely on your requirements. Everything from a single source: We associate the highest quality requirements down to the smallest of details with this claim. Not only do you receive individual components that are perfectly attuned to one another with the highest possible efficiency, but also individually customised concepts for the most diverse areas of application, from Office and Health, via Retail, all the way to Industry.

### The quickest project service on the market

Here, speed and precision go hand in hand: Our project service develops customised LED modules in the shortest period of time. You receive concepts that are customised exactly to your requirements; we are making prototypes and samples available to you just as quickly. Optical and thermal measurements of the LED modules create the basis for optimising your products. We combine innovative ideas and highest quality with short development and manufacturing times – all from Germany – at the best price/performance ratio. A close communication between you and our project service team guarantees a speedy implementation to you.

### Quality and all-round service from a single source

In the LED module project service you do, of course, also receive the perfect BAG product quality that you are accustomed to:

- Long lifetime and maximal efficiency
- Choice of the most diverse CRI and CCT values
- Suitable ECG and supplemental components

### Your module, our customised service

Our components, from development to series production

1. Specification and tender preparation
  2. Layout design
  3. Test sample
  4. Series manufacturing
  5. Optimal packaging
  6. Testing and verification
  7. Certifications
- Customised and cost-efficient solutions with German development know-how
  - Quick and goal-oriented implementation of your wishes and project requirements from design all the way to manufacturing
  - Shortest development and realisation times of LED modules, with highest meeting of deadlines and reliability, through manufacturing in Germany

Inquire about your need for customer-specific LED modules at:

BAG electronics GmbH  
Tel: +49 2932 9000 9800  
Fax: +49 2932 9000 9796

# ASTARES MixedWhite A-Series

## LED modules in plane design

### SELV

Industry	● ○ ○ ○ ○
Office & Commercial	● ● ● ● ●
Education	● ● ● ○ ○
Health	● ● ● ○ ○



**5 YEARS**  
warranty

#### Performance characteristics

- Plane LED modules for white/white applications
- 2 LED groups for setting the light colour of the mixed light in the range of 2,700 ... 6,500 K
- Colour rendering with a CRI value of up to 86
- Very low tolerance in the colour temperature with 3 SDCM
- Very high efficiency of the LED modules with up to 172 lm/W
- LED modules suitable for constant current operation in SELV applications
- Straight-forward electrical connection via push-in terminals with release option
- Easy installation of the modules via screw fastening
- Optimised temperature distribution for simplified heat management in luminaires
- Attuned operation with the ZITARES ICD290 ECG

#### General technical data

Photometric data	
Efficiency	172 lm/W
Colour consistency (initial)	3 SDCM
Colour consistency (after 60,000 h)	4 SDCM
Light distribution	120 ° (FWHM) Lambertian
Tolerance of luminous flux	±7.5 % at tp = 65 °C
Photobiological safety	Class 1
Electrical data	
Operation	Constant current
Maximum admissible operating current	1,050 mA per channel  2,100 mA per module (channel 1 + channel 2)
Creepage and clearance distances designed for voltages	max. 60 VDC
Installation notes	
Type of mounting	M4 screws
Torque (tapped thread)	0.4 ... 0.8 Nm
Type of connector	Push-in terminal with release option
Wire cross section	0.2 - 0.75 mm <sup>2</sup>
Wire stripping length	8 mm
Lifetime	
L80B50 at tc = tp = 65 °C	60,000 h
L70B50 at tc, max = 75 °C	60,000 h

#### Conformity

- EN 62031
- EN 62471
- EN 61547
- EN 55015
- IEC 62717

#### Markings





## Operating parameters

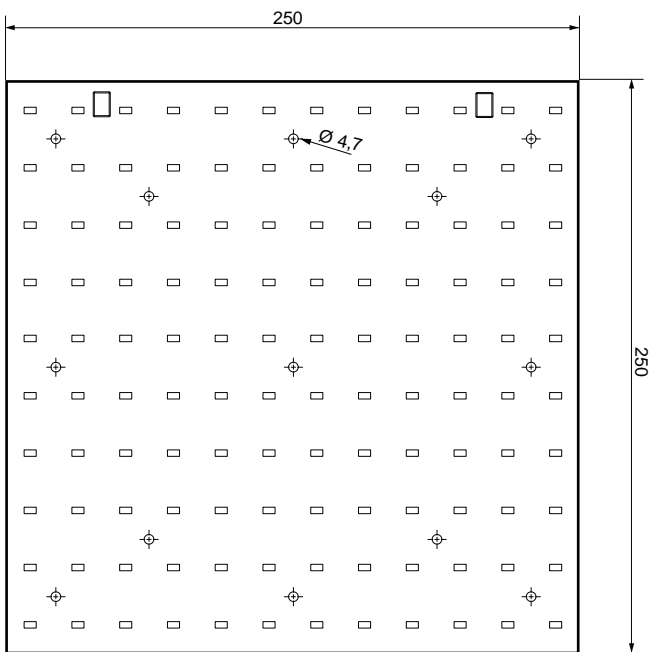
Designation	Order number	Luminous flux	Colour temperature	Colour rendering	Photometric code	Rated operating current	Operating voltage	Wattage	Efficiency
		lm	K	CRI		mA	VDC		
LMC-MW/A-110-827.865-01/L25W25	10132585	600	2700	83	827/349	350	10.7	3.7	161
		1200				700	11.0	7.7	153
		650	6500	86	865/349	350	10.7	3.7	172
		1250				700	11.0	7.7	163

- All operating parameters correspond to typical values and are relative to rated operation at  $t_a = 65^\circ\text{C}$   
 - Additional information regarding luminous fluxes vs. operating currents can be found in the table on pages 18-19

## Dimensions | weights | temperatures

Designation	Length	Width	Height	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$	Rated operating temperature $t_p$
	mm	mm	mm	kg	$^\circ\text{C}$	$^\circ\text{C}$	$^\circ\text{C}$
LMC-MW/A-110-827.865-01/L25W25	250	250	7	0.224	-20 ... 45	75	65

### Dimensions



### Application notes

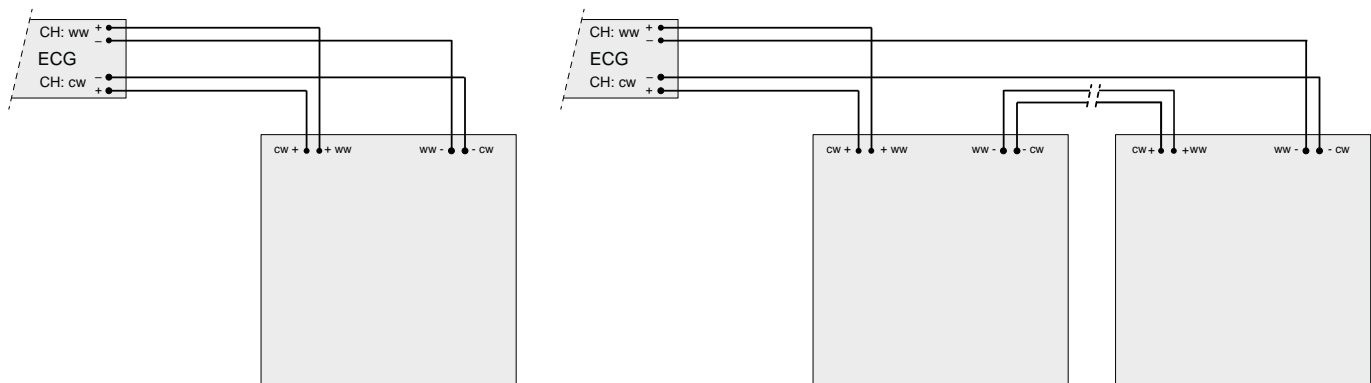


In the handling of the modules, safety measures regarding electro-static discharge (ESD) as well as regarding mechanical stresses must be adhered to.



The system design must comply with all safety requirements posed by standard in dependence on the electrical supply and the installation area.

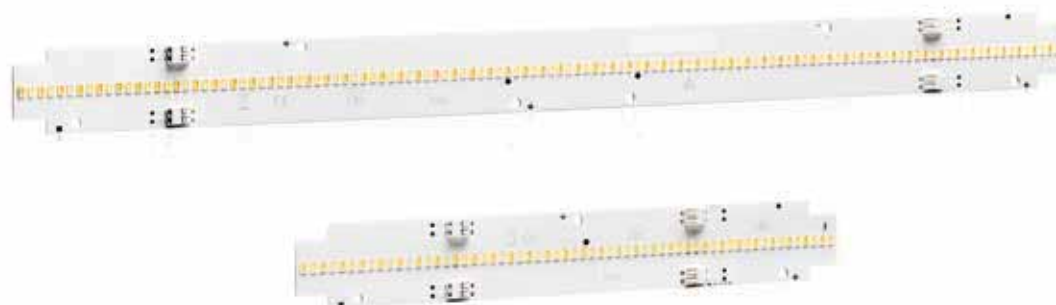
### Wiring diagrams



# ASTARES MixedWhite B-Series

## LED modules in linear, wide design SELV

Industry	● ● ● ● ○
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ●
Health	● ● ● ● ○



**5 YEARS**  
warranty

### Performance characteristics

- Linear LED modules for white/white applications
- 2 LED groups for setting the light colour of the mixed light in the range of 2,700 ... 6,500 K
- Optimal homogeneity of light distribution due to number and positioning of the LEDs
- Colour rendering with a CRI value of up to 86
- Very low tolerance in the colour temperature with 3 SDCM
- Very high efficiency of the LED modules with up to 154 lm/W
- LED modules suitable for constant current operation in SELV applications
- Straight-forward electrical connection via push-in terminals with push-button
- Easy installation of the modules via screw fastening
- Optimised temperature distribution for simplified heat management in luminaires
- Attuned operation with the ZITARES ICD290 ECG

### General technical data

Photometric data	
Efficiency	154 lm/W
Colour consistency (initial)	3 SDCM
Colour consistency (after 60,000 h)	4 SDCM
Light distribution	120 ° (FWHM) Lambertian
Tolerance of the luminous flux	±7.5 % at tp = 65 °C
Photobiological safety	Class 1
Electrical data	
Operating mode	Constant current
Maximum admissible operating current	1,050 mA per channel  1,500 mA per module (channel 1 + channel 2)
Creepage and clearance distances designed for voltages	max. 120 VDC
Installation notes	
Type of mounting	M4 screws
Torque (tapped thread)	0.4 ... 0.8 Nm
Type of connector	Push-in terminal with release option
Wire cross section	0.2 - 0.75 mm <sup>2</sup>
Wire stripping length	8 mm
Lifetime	
L80B50 at tc = tp = 65 °C	60,000 h
L70B50 at tc, max = 75 °C	60,000 h

### Conformity

- EN 62031
- EN 62471
- EN 61547
- EN 55015
- IEC 62717

### Markings



## Operating parameters

Designation	Order number	Luminous flux	Colour temperature	Colour rendering	Photometric code	Rated operating current	Operating voltage	Wattage	Efficiency	
		lm	K	CRI		mA	VDC			W
LMC-MW/B-110-827.865-01/ L28W4	10132586	925	2700	83	827/349	700	8.5	6.0	154	
		1100				850	9.0			7.7
		925	6500	86		865/349	700	8.5	6.0	154
		1100					850	9.0		
LMC-MW/B-200-827.865-01/ L56W4	10132587	1850	2700	83	827/349		700	17.0	11.9	154
		2200					850	18.0		
		1850	6500	86		865/349	700	17.0	11.9	154
		2200					850	18.0		

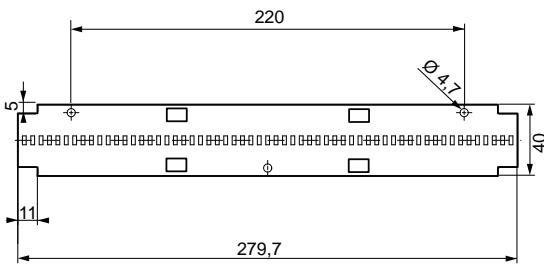
- All operating parameters correspond to typical values and are relative to rated operation at  $t_c = 65^\circ\text{C}$   
 - Additional information regarding luminous fluxes vs. operating currents can be found in the table on pages 18-19

## Dimensions | weights | temperatures

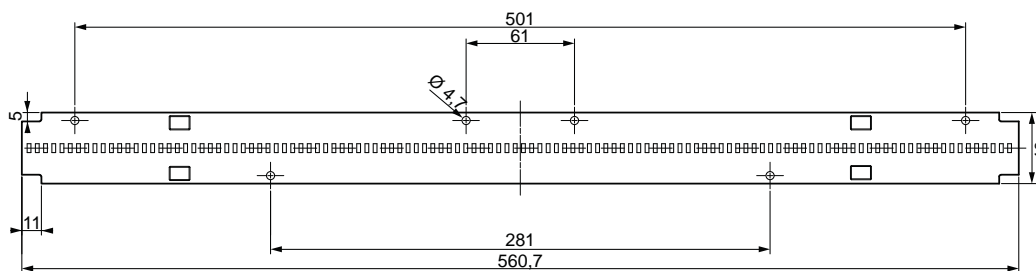
Designation	Length	Width	Height	Distance of holes (length-wise)	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$	Rated operating temperature $t_p$
	mm	mm	mm	mm	kg	$^\circ\text{C}$	$^\circ\text{C}$	$^\circ\text{C}$
LMC-MW/B-110-827.865-01/ L28W4	279.7	40	7	220	0.050	-20 ... 45	75	65
LMC-MW/B-200-827.865-01/ L56W4	560.7	40	7	501	0.092	-20 ... 45	75	65

### Dimensions

LMC...L28W4



LMC...L56W4



### Application notes

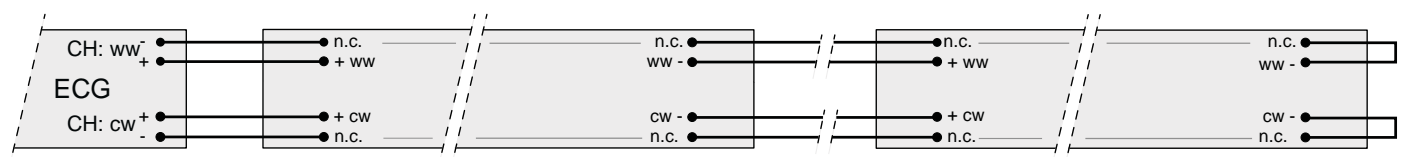
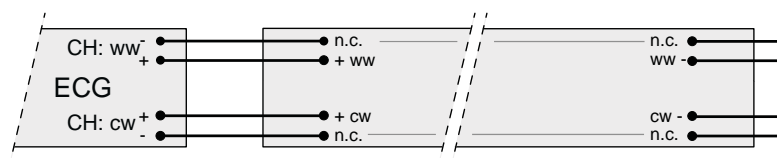


In the handling of the modules, safety measures regarding electro-static discharge (ESD) as well as regarding mechanical stresses must be adhered to.



The system design must comply with all safety requirements posed by standard in dependence on the electrical supply and the installation area.

### Wiring diagrams



# ASTARES MixedWhite C-Series

## LED modules in linear, narrow design

### Non-SELV

Industry	● ● ● ○ ○
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ○
Health	● ● ● ○ ○



**5 YEARS**  
warranty

#### Performance characteristics

- Linear LED modules for white/white applications in slim design (24 mm)
- 2 LED groups for setting the light colour of the mixed light in the range of 2,700 ... 6,500 K
- Optimal homogeneity of light distribution due to number and positioning of the LEDs
- Colour rendering with a CRI value of up to 86
- Very low tolerance in the colour temperature with 3 SDCM
- Very high efficiency of the LED modules with up to 168 lm/W
- LED modules suitable for constant current operation in SELV and non-SELV applications
- Straight-forward electrical connection via push-in terminals with push-button
- Easy installation of the modules via screw fastening
- Optimised temperature distribution for simplified heat management in luminaires
- Attuned operation with the ZITARES NCD ECG

#### General technical data

Photometric data	
Efficiency	168 lm/W
Colour consistency (initial)	3 SDCM
Colour consistency (after 50,000 h)	4 SDCM
Light distribution	120 ° (FWHM) Lambertian
Tolerance of the luminous flux	±7.5 % at tp = 65 °C
Photobiological safety	Class 1
Electrical data	
Operating mode	Constant current
Maximum admissible operating current	500 mA per channel
	600 mA per module (channel 1 + channel 2)
Creepage and clearance distances designed for voltages	max. 250 VDC
Installation notes	
Type of mounting	M4 screws
Torque (tapped thread)	0.4 ... 0.8 Nm
Type of connector	Push-in terminal with release option
Wire cross section	0.2 - 0.75 mm <sup>2</sup>
Wire stripping length	8 mm
Lifetime	
L80B50 at tc = tp = 65 °C	50,000 h
L70B50 at tc, max = 75 °C	50,000 h

#### Conformity

EN 62031  
EN 62471  
EN 61547  
EN 55015  
IEC 62717

#### Markings



## Operating parameters

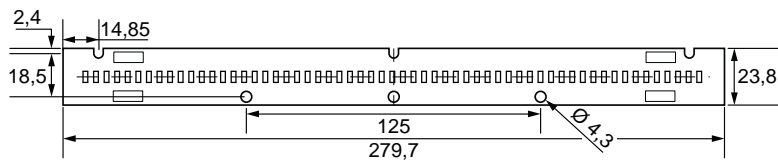
Designation	Order number	Luminous flux	Colour temperature	Colour rendering	Photometric code	Rated operating current	Operating voltage	Wattage	Efficiency
		lm	K	CRI		mA	VDC		
LMC-MW/C-110-827.865-01/L28W2	10132588	800	2700	83	827/349	300	16.8	5	160
		1150				450	17.9	8.1	148
		850	6500	86	865/349	300	16.8	5	168
		1200				450	17.5	7.9	155

- All operating parameters correspond to typical values and are relative to rated operation at  $t_c = 65^\circ\text{C}$   
 - Additional information regarding luminous fluxes vs. operating currents can be found in the table on pages 18-19

## Dimensions | weights | temperatures

Short designation	Length	Width	Height	Distance of holes (length-wise)	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$	Rated operating temperature $t_p$
	mm	mm	mm	mm	kg	$^\circ\text{C}$	$^\circ\text{C}$	$^\circ\text{C}$
LMC-MW/C-110-827.865-01/L28W2	279.7	23.8	7	125	0.028	-20 ... 45	75	65

## Dimensions



## Application notes

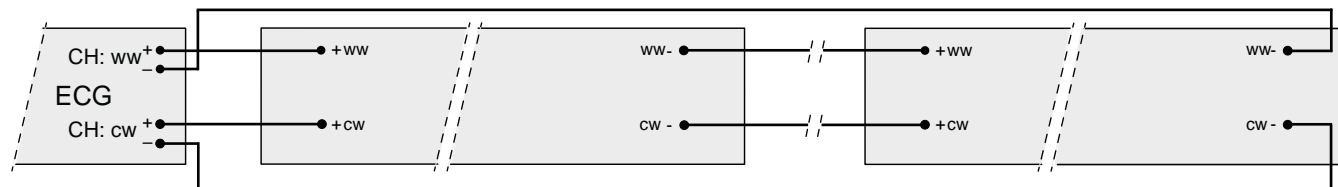


In the handling of the modules, safety measures regarding electro-static discharge (ESD) as well as regarding mechanical stresses must be adhered to.



The system design must comply with all safety requirements posed by standard in dependence on the electrical supply and the installation area.

## Wiring diagrams





# ASTARES MixedWhite D-Series

## LED modules in linear, slim design

### SELV

Industry	● ● ● ● ○
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ●
Health	● ● ● ● ○



**5 YEARS**  
warranty

#### Performance characteristics

- Linear LED modules for white/white applications in slim design (24 mm)
- 2 LED groups for setting the light colour of the mixed light in the range of 2,700 ... 6,500 K
- Optimal homogeneity of light distribution due to number and positioning of the LEDs
- Colour rendering with a CRI value of up to 86
- Very low tolerance in the colour temperature with 3 SDCM
- Very high efficiency of the LED modules with up to 154 lm/W
- LED modules suitable for constant current operation in SELV applications
- Straight-forward electrical connection via push-in terminals with push-button
- Easy installation of the modules via screw fastening
- Optimised temperature distribution for simplified heat management in luminaires
- Attuned operation with the ZITARES ICD290 ECG

#### General technical data

Photometric data	
Efficiency	154 lm/W
Colour consistency (initial)	3 SDCM
Colour consistency (after 50,000 h)	4 SDCM
Light distribution	120 ° (FWHM) Lambertian
Tolerance of the luminous flux	±7.5 % at tp = 65 °C
Photobiological safety	Class 1
Electrical data	
Operating mode	Constant current
Maximum admissible operating current	900 mA per channel
	1,000 mA per module (channel 1 + channel 2)
Creepage and clearance distances designed for voltages	max. 60 VDC
Installation notes	
Type of mounting	M4 screws
Torque (tapped thread)	0.4 ... 0.8 Nm
Type of terminals	Push-in terminal with release option
Wire cross section	0.2 - 0.75 mm <sup>2</sup>
Wire stripping length	8 mm
Lifetime	
L80B50 at tc = tp = 65 °C	50,000 h
L70B50 at tc, max = 75 °C	50,000 h

#### Conformity

- EN 62031
- EN 62471
- EN 61547
- EN 55015
- IEC 62717

#### Markings



## Operating parameters

Designation	Order number	Luminous flux	Colour temperature	Colour rendering	Photometric code	Rated operating current	Operating voltage	Wattage	Efficiency
		lm	K	CRI		mA	VDC		
LMC-MW/D-110-827.865-01/ L28W2	10134535	800	2700	83	827/349	700	8.5	6.0	154
		1150				900	8.8		
		850	6500	86	865/349	700	8.5	6.0	154
		1200				900	8.8		
LMC-MW/D-200-827.865-01/ L56W2	10134537	1600	2700	83	827/349	700	17	11.9	154
		2300				900	17.6		
		1700	6500	86	865/349	700	17	11.9	154
		2400				900	17.6		

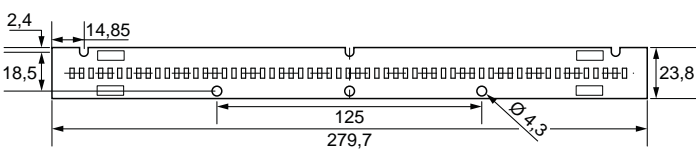
- All operating parameters correspond to typical values and are relative to rated operation at  $t_c = 65^\circ\text{C}$   
 - Additional information regarding luminous fluxes vs. operating currents can be found in the table on pages 18-19

## Dimensions | weights | temperatures

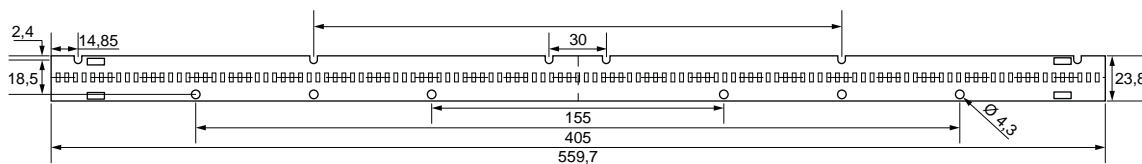
Designations	Length	Width	Height	Distance of holes (length-wise)	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$	Rated operating temperature $t_p$
	mm	mm	mm	mm	kg	$^\circ\text{C}$	$^\circ\text{C}$	$^\circ\text{C}$
LMC-MW/D-110-827.865-01/ L28W2	279.7	23.8	7	125	0.029	-20 ... 45	75	65
LMC-MW/D-200-827.865-01/ L56W2	559.7	23.8	7	155 / 405	0.057	-20 ... 45	75	65

## Dimensions

LMC...L28W2



LMC...L56W2



## Application notes

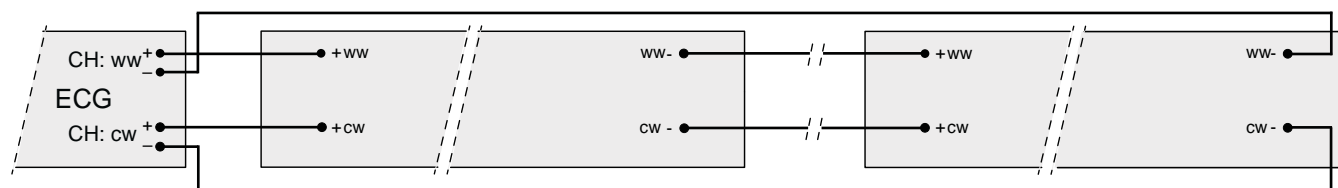


In the handling of the modules, safety measures regarding electro-static discharge (ESD) as well as regarding mechanical stresses must be adhered to.



The system design must comply with all safety requirements posed by standard in dependence on the electrical supply and the installation area.

## Wiring diagrams



# ASTARES MixedWhite E-Series

## LED modules in rectangular design

### SELV

Industry	● ● ● ● ●
Office & Commercial	● ● ● ● ○
Education	● ● ● ● ○
Health	● ● ● ● ○



**5 YEARS**  
warranty

#### Performance characteristics

- Rectangular LED modules for white/white applications with a width of 55 mm
- 2 LED groups for setting the light colour of the mixed light in the range of 2,700 ... 6,500 K
- Optimal homogeneity of light distribution due to number and positioning of the LEDs
- Colour rendering with a CRI value of up to 86
- Very low tolerance in the colour temperature with 3 SDCM
- Very high efficiency of the LED modules with up to 153 lm/W
- LED modules suitable for constant current operation in SELV applications
- Straight-forward electrical connection via push-in terminals with push-button
- Easy installation of the modules via screw fastening
- Optimised temperature distribution for simplified heat management in luminaires
- Attuned operation with the ZITARES ICD290 ECG

#### General technical data

Photometric data	
Efficiency	153 lm/W
Colour consistency (initial)	3 SDCM
Colour consistency (after 60,000 h)	4 SDCM
Light distribution	120 ° (FWHM) Lambertian
Tolerance of the luminous flux	±7.5 % at tp = 65 °C
Photobiological safety	Class 1
Electrical data	
Operating mode	Constant current
Maximum admissible operating current	900 mA per channel  1,400 mA per module (channel 1 + channel 2)
Creepage and clearance distances designed for voltages	max. 60 VDC
Installation notes	
Type of mounting	M4 screws
Torque (tapped thread)	0.4 ... 0.8 Nm
Type of connector	Push-in terminal with release option
Wire cross section	0.2 - 0.75 mm <sup>2</sup>
Wire stripping length	8 mm
Lifetime	
L80B50 at tc = tp = 65 °C	60,000 h
L70B50 at tc, max = 75 °C	60,000 h

#### Conformity

- EN 62031
- EN 62471
- EN 61547
- EN 55015
- IEC 62717

#### Markings



## Operating parameters

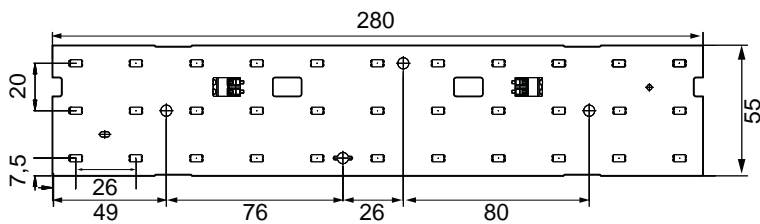
Designation	Order number	Luminous flux	Colour temperature	Colour rendering	Photometric code	Rated operating current	Operating voltage	Wattage	Efficiency
		lm	K	CRI		mA	VDC	W	lm/W
LMC-MW/E-150-827.865-01 L28W6	10134536	875	2700	83	827/349	700	8.7	6.1	142
		1100				900	8.8	7.9	137
		925	6500	86	865/349	700	8.7	6.1	153
		1175				900	8.8	7.9	147

- All operating parameters correspond to typical values and are relative to rated operation at  $t_c = 65^\circ\text{C}$   
 - Additional information regarding luminous fluxes vs. operating currents can be found in the table on pages 18-19

## Dimensions | weights | temperatures

Designation	Length	Width	Height	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$	Rated operating temperature $t_p$
	mm	mm	mm	kg	$^\circ\text{C}$	$^\circ\text{C}$	$^\circ\text{C}$
LMC-MW/E-150-827.865-01 L28W6	280	55	6	0.063	-20 ... 45	75	65

### Dimensions



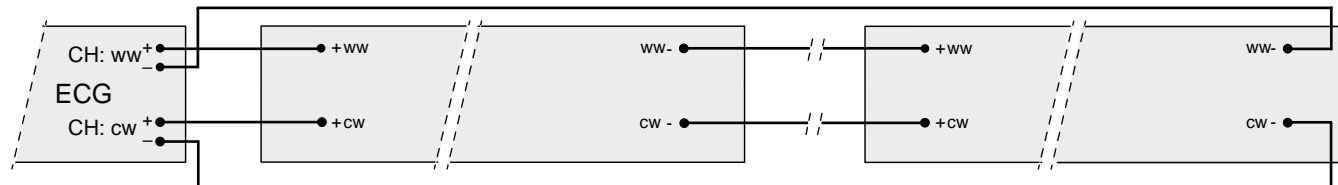
### Application notes



In the handling of the modules, safety measures regarding electro-static discharge (ESD) as well as regarding mechanical stresses must be adhered to.

The system design must comply with all safety requirements posed by standard in dependence on the electrical supply and the installation area.

### Wiring diagrams



# ZITARES ICD

Dimmable constant current ECG (SELV)  
2 individually controllable output channels

Industry	● ● ● ○ ○
Office & Commercial	● ● ● ● ●
Education	● ● ● ● ●
Health	● ● ● ● ●



## Performance characteristics

- Dimmable 2-channel ECG for constant current operation of LED modules
- 2 individually controllable output channels via separate DALI addresses
- Automatic addressing of the output channels in combination with the MixedWhite *plus* controller
- Programmable functions and parameters\* for adjusting to specific applications
  - Individual output current in the range of 250 - 900 mA per channel and/or 500 - 1,800 mA in case of parallel connection
  - Dimming method: Choice between Amplitude, PWM (500 Hz) and Mixed-Mode
  - Compensation of LED degradation during the operating period (Constant Lumen Output)
  - Temperature-dependent control of the output currents
- Asymmetrical load of the output channels is permitted
- Very high energy efficiency of up to 90 % (100 % load)
- ECG comprehensively protected against abnormal operating conditions at the output, e.g. short circuit, open circuit, overload
- Dimming range 1 ... 100 % luminous flux

\* Programming via zitares360 software

Additional versions of the ZITARES intelligent series will be available in Q4.

For a detailed description of the versions, see the data sheet and visit [www.BAGelectronics.com](http://www.BAGelectronics.com)



## General technical data

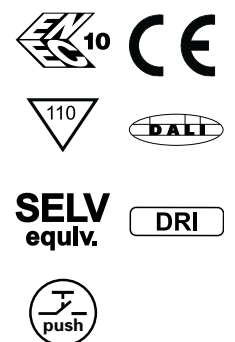
Mains voltage supply	
Rated voltage range	220 ... 240 [V]
Rated frequency	0 / 50 ... 60 [Hz]
Max. permanent voltage range (AC)	198 - 264 [V]
Max. permanent voltage range (DC)	198 ... 278 [V]
Max. leakage current	0.5 mA
Total harmonic distortion (THD)	10 %, at 100 % load
Behaviour in case of mains overvoltage	
Switch-off of the LEDs at overvoltage	appr. 320 VAC
Overvoltage protection	350 VAC (2 h)
Output data	
Constant current	adjustable
Tolerance of output current	+/- 5 %
Max. ripple of output current	+/- 10 %
Output voltage limitation	60 VDC; SELV equiv.
Galvanic isolation to mains input	yes; testing voltage 3.75 kV
Max. starting time	0.5 s
Lifetime	
Operation at $t_c = t_{c,max}$	50,000 h; Failure rate $\leq 10$ %
Operation at $t_c = t_{c,max} - 10$ K	100,000 h; Failure rate $\leq 10$ %
Interfaces and dimming operation	
Sensor interface	Detect & React Interface (DRI)
Dimming interfaces	DALI, Push-Dim
Dimming range	1...100 %
Max. stand-by power	0.3 W
Degree of protection	
Degree of protection housing	IP20

5 YEARS warranty

## Conformity

- EN 61347-1
- EN 61347-2-13
- EN 62384
- EN 61547
- EN 55015
- EN 62386-102
- EN 62386-207
- IEC 60068-2-6
- IEC 60068-2-27

## Markings



HCL Components



## Operating parameters

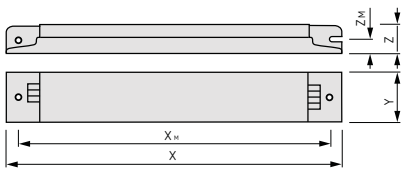
Designation	Order number	Output currents	Output voltage	Total output power max.	Input current	Power factor	ECG efficiency
		(pre-set) mA	VDC				
ICD290-60LS-01/ 220-240/DALI	10105905	2 x 250 ... 900 (700)	10 ... 33	60	0.30	0.98	90
ICD290-100LS-01/ 220-240/DALI	10105906	2 x 250 ... 900 (700)	25 ... 53	96	0.45	0.98	90

- All information at rated operation 230 VAC and 100 % load

## Dimensions | weights | temperatures

Short designation	Length X	Width Y	Height Z	Distance of holes X <sub>M</sub>	Distance of holes Z <sub>M</sub>	Weight	Ambient temperature t <sub>a</sub>	Housing temperature t <sub>c,max</sub>
	mm	mm	mm	mm	mm	kg	°C	°C
ICD290-60LS-01.../DALI	360	30	21	350	9	0.305	-25...50	75
ICD290-100LS-01.../DALI	360	30	21	350	9	0.305	-25...50	75

## Case drawing

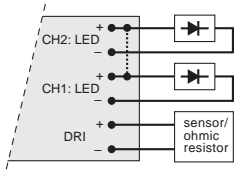


## Current selection

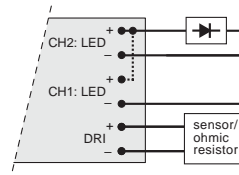
Output current	ICD290-60LS...	ICD290-100LS...
250 ... 900 mA	2 x	2 x
500 ... 1800 mA		1 x
s. wiring diagrams	1	2

## Wiring diagrams

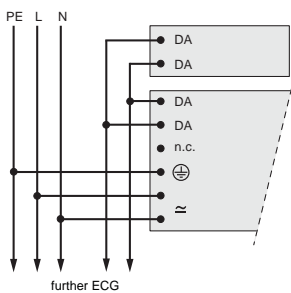
1 - Connection ECG output side



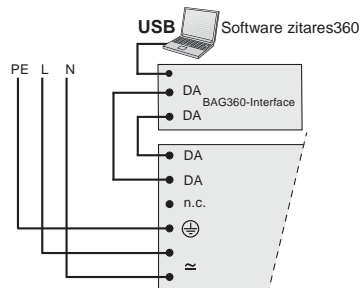
2 - Connection ECG output side



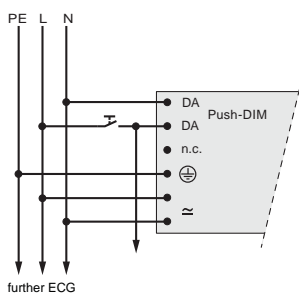
A - Connection ECG input side in case of DALI control



C - Connection ECG – communications box for programming



B - Connection ECG input side in case of push-button control



# ZITARES CCD 2<sup>nd</sup> Generation

## Dimmable constant current ECG for LED modules (SELV)

Industry	● ● ○ ○ ○
Office & Commercial	● ● ● ● ○
Education	● ● ● ● ○
Health	● ● ● ○ ○



HCL Components



### Performance characteristics

- Dimmable 1-channel ECG for constant current operation of LED modules
- Adjustable output current due to external resistor circuitry (LEDset) or due to programming via zitares360 software
- SELV equiv. output voltage ≤ 60 VDC
- Very high energy efficiency of up to 90 % (100 % load)
- Soft start and low ripple of the current output
- Designed for use in luminaires of protection class I
- ECG comprehensively protected against abnormal operating conditions at the output, e.g. short circuit, open circuit, overload
- Suitable for DC operation and use in combination with central battery systems
- Push-Dim function: Dimming and switching via push-button, with memory function
- Adjustable recovery function: automatic switching on after a mains failure
- Dimming range 1 ... 100 % luminous flux
- Mixed-Mode dimming method: Amplitude + PWM (500 Hz)
- Conformance with international regulations, regarding safety and operation, electromagnetic compatibility and immunity to interference



### General technical data

Mains voltage supply	
Nominal voltage range	220 ... 240 [V]
Rated frequency	0 / 50 ... 60 [Hz]
Max. permanent voltage range (AC)	198 - 264 [V]
Max. permanent voltage range (DC)	198 ... 278 [V]
Max. leakage current	0.5 mA
Total harmonic distortion (THD)	10 %, at 100 % load
Behaviour in case of mains overvoltage	
Switch-off the LEDs in case of overvoltage	approx. 320 VAC
Overvoltage-proofness (duration)	350 VAC (2 h)
Output data	
Constant current	adjustable
Tolerance of the output current	+/- 5 %
Max. ripple of the output current	+/- 10 %
Restriction of the output current	60 VDC; SELV equiv.
Galvanic isolation to mains input	yes; test voltage 3.75 kV
Max. starting time	0.5 s
Lifetime	
Operation at $t_c = t_{c,max}$	50,000 h; Failure rate ≤ 10 %
Operation at $t_c = t_{c,max} - 10 K$	100,000 h; Failure rate ≤ 10 %
Interfaces and dimming operation	
Sensor interface	LEDset
Dimming interfaces	DALI, Push-Dim
Dimming range	1...100%
Dimming method	Mixed-Mode
Max. stand-by power loss	0.3 W
Degree of protection	
Degree of protection housing	IP20

5 YEARS WARRANTY

### Conformity

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-13/J
- EN 62384
- EN 61547
- EN 55015
- EN 62386-102
- EN 62386-207
- IEC 60068-2-6
- IEC 60068-2-27

### Markings



## Operating parameters

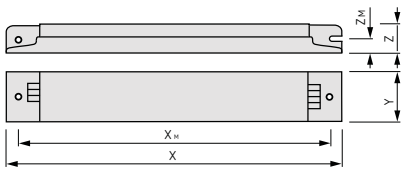
Designation	Order number	Output current (pre-set) mA	Output voltage VDC	Total output current max. W	Input current A	Power factor	ECG efficiency %
CCD1150-50FR-20/ 220-240/DALI	10116443	1 x 500 ... 1500 (500)	13 ... 55	50	0.27	0.98	90

- All information at rated operation 230 VAC and 100 % load

## Dimensions | weights | temperatures

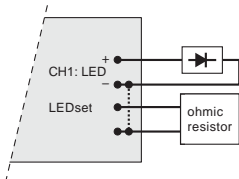
Short designation	Length X	Width Y	Height Z	Distance of holes $X_M$	Distance of holes $Z_M$	Weight kg	Ambient temperature $t_a$ °C	Housing temperature $t_{c,max}$ °C
CCD1150-50FR-20.../DALI	360	30	21	350	9	0.260	-25 ... 50	75

## Case drawing

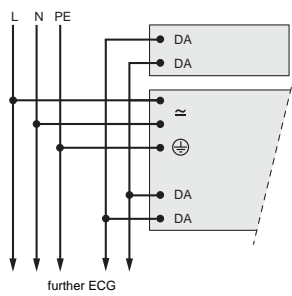


## Wiring diagrams

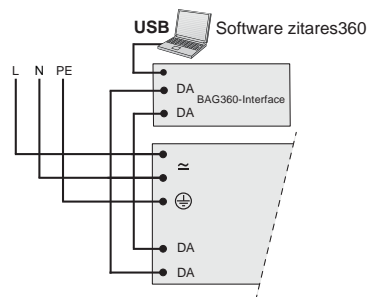
### 1 - Connection ECG output side



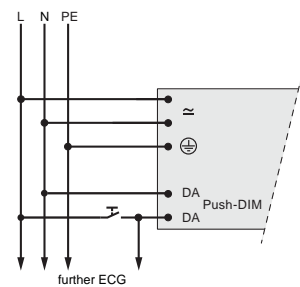
### A - Connection ECG input side in case of DALI control



### C - Connection ECG – communications box for programming



### B - Connection ECG input side in case of push-button control



# ZITARES NCD 2<sup>nd</sup> Generation

## Dimmable constant current ECG for LED modules (non-SELV)

Industry	● ● ● ● ●
Office & Commercial	● ● ● ● ○
Education	● ● ● ○ ○
Health	● ● ● ○ ○



HCL Components



### Performance characteristics

- Dimmable 1-channel ECG for constant current operation of LED modules
- Adjustable power output currents due to external resistor circuitry (LEDset) or due to programming via zitares360 software
- Non-SELV output voltage
- Very high energy efficiency of up to 94 % (100 % load)
- Soft start and low ripple of the current output
- Designed for use in luminaires of protection class I
- ECG comprehensively protected against abnormal operating conditions at the output, e.g. short circuit, open circuit, overload
- Suitable for DC operation and use in combination with central battery systems
- Push-Dim function: Dimming and switching via push-button, with memory function
- Adjustable recovery function: automatic switching on after a mains failure
- Dimming range 1 ... 100 % luminous flux
- Mixed-Mode dimming method: Amplitude + PWM
- Conformance with international regulations, regarding safety and operation, electromagnetic compatibility and immunity to interference



### General technical data

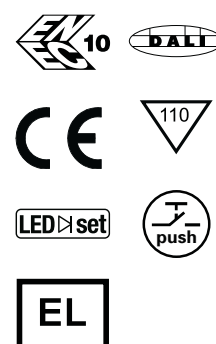
Mains voltage supply	
Nominal voltage range	220 ... 240 [V]
Rated frequency	0 / 50 ... 60 [Hz]
Max. permanent voltage range (AC)	198 - 264 [V]
Max. permanent voltage range (DC)	198 ... 278 [V]
Max. leakage current	0.5 mA
Total harmonic distortion (THD)	10 %, at 100 % load
Behaviour in case of mains overvoltage	
Switch off the LEDs in case of overvoltage	approx. 320 V
Overvoltage-proofness (duration)	350 V (2 h)
Output data	
Constant current	adjustable
Tolerance of the output current	+/- 5 %
Max. ripple of the output current	+/- 10 %
Limitation of the output current	270 V (NCD140) 250 V (NCD180)
Galvanic isolation to mains input	no
Max. starting time	0.5 s
Lifetime	
Operation at $t_c = t_{c,max}$	50,000 h; Failure rate $\leq 10$ %
Operation at $t_c = t_{c,max} - 10$ K	100,000 h; Failure rate $\leq 10$ %
Interfaces and dimming operation	
Sensor interface	LEDset
Dimming interfaces	DALI, Push-Dim
Dimming range	1...100%
Dimming method	Mixed-Mode
Max. stand-by power loss	0.3 W
Degree of protection	
Degree of protection housing	IP20

5 YEARS WARRANTY

### Conformity

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-13/J
- EN 62384
- EN 61547
- EN 55015
- IEC 60068-2-6
- IEC 60068-2-27
- EN 62386-102
- EN 62386-207

### Markings



## Operating parameters

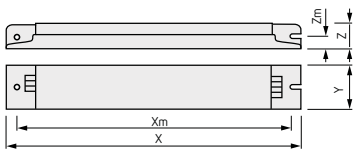
Designation	Order number	Output current (pre-set)	Output voltage	Total output current max.	Input current	Power factor	ECG efficiency
		mA	VDC	W	A		%
NCD140-70FX-20/ 220-240/DALI	10116488	1 x 120 ... 400 (120)	40 ... 250	70	0.31	0.98	94
NCD180-100FX-20/ 220-240/DALI	10116492	1 x 350 ... 800 (350)	40 ... 220	100	0.44	0.98	94

- All information at rated operation 230 VAC and 100 % load

## Dimensions | weights | temperatures

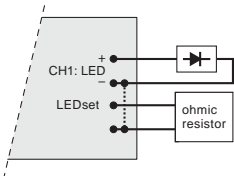
Short designation	Length X	Width Y	Height Z	Distance of holes $X_M$	Distance of holes $Z_M$	Weight	Ambient temperature $t_a$	Housing temperature $t_{c,max}$
	mm	mm	mm	mm	mm	kg	°C	°C
NCD140-70FX-20... /DALI	280	30	21	270	9	0.260	-25 ... 50	75
NCD180-100FX-20... /DALI	280	30	21	270	9	0.260	-25 ... 50	75

## Case drawing

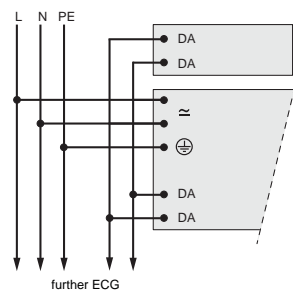


## Wiring diagrams

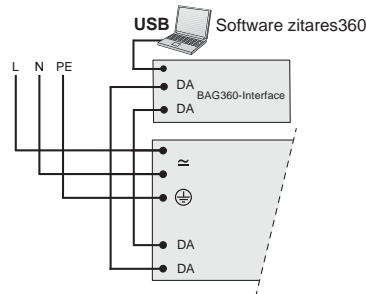
1 - Connection ECG output side



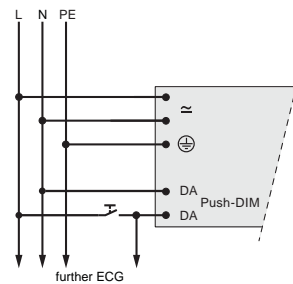
A - Connection ECG input side in case of DALI control



C - Connection ECG – communications box for programming



B - Connection ECG input side in case of push-button control







# BAG360-Interface

## DALI programming unit for ZITARES ECG

zitares360



### Performance characteristics

- Programming device for the setting of parameters and analysis of ZITARES DALI ECG
- For use in connection with the zitares360 PC software
- USB socket (2.0; type B) for connection to the PC; terminals for connection of the ECG
- USB cable, 1 m long, included in scope of delivery
- Optional DC auxiliary voltage supply input to increase the DALI bus operating current
- Status display (send, receive, power) by means of coloured LEDs
- Compact housing with terminal cover and strain relief system

### Order data

Designation	Order number
PGT-BAG360-20/USB-DALI	10133000

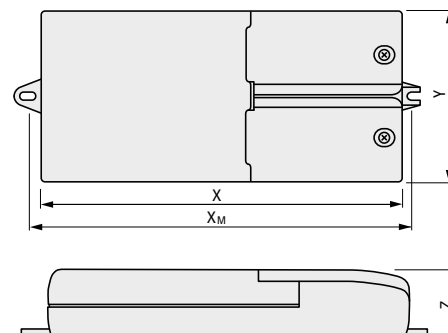
### Markings



### General technical data

<b>Voltage supply</b>	
Nominal voltage range	15 ... 20 [VDC]
<b>Temperature</b>	
Ambient temperature $t_a$	-0 ... 50 [°C]
<b>Weight</b>	
Weight	0.151 kg (incl. USB cable)
<b>Dimensions</b>	
Length X	180 mm
Width Y	86 mm
Height Z	33 mm
Distance of holes $X_M$	191 mm
<b>Degree of protection</b>	
Degree of protection housing	IP20

### Case drawing



## Accessories

### Data line



#### Product information

- Data line with RJ10 plugs at both ends

Designation	Order number	Length [m]
Data line 0L02	120292	2
Data line 0L05	120302	5
Data line 0L10	120422	10
Data line 0L20	120432	20

### Modular coupling



#### Product information

- Coupling for connecting 2 data lines with RJ10 plugs

Designation	Order number
Modular coupling OMK1	120462

### Two-way distributor



#### Product information

- Two-way distributor for parallel connection of components with RJ10 plugs to a MixedWhite *plus* controller

Designation	Order number
Two-way distributor OMD2	170612

### Recess-mounting kit



#### Product information kit

- Recess-mounting set for sensor LGS-PL-01/MW/M, painted white, round design with 89 mm exterior diameter, tool-free installation by means of retaining springs, suitable for ceiling plates with a thickness of 1 ... 20 mm, required installation space above the sensor: 60 mm

Designation	Order number
Recess-mounting kit LGM-RM/M	162852







#### Headquarters

BAG electronics GmbH  
Kleinbahnstraße 27  
59759 Arnsberg  
Germany  
Tel: +49 2932 9000 9800  
Fax: +49 2932 9000 9796

BAG electronics GmbH  
Sales Office Milano  
Via Cavriana 3  
20134 Milano, Italy  
Tel: +39 0 2739 1274  
Fax: +39 0 2739 1410

BAG electronics GmbH  
Sales Office London  
Unit 2, Winsford Way,  
Chelmsford, Essex, CM2 5PD  
United Kingdom  
Tel: +44 1245 469935  
Fax: +44 1245 462646

BAG electronics (India) Pvt. Ltd.  
S.No 19, Yewlewadi, Kondhwa Road  
Pune 411 048, India  
Tel: +91 20 3045 0702  
Fax: +91 20 3045 0800

BAG electronics (Guangzhou) Ltd.  
Room 1009, Yian Plaza  
Jianshe liu Road, Yuexiu dis tric,  
Guangzhou  
Post Code: 510600, China  
Tel: +86 20 3836 1176  
Fax: +86 20 3836 1177

BAG electronics (HK) Ltd.  
Unit 3, 9/F,  
Hopeful Factory Centre,  
10-16 Wo Shing Street, Fotan, Shatin,  
New Territories, Hong Kong  
Tel: +852 2307 6292  
Fax: +852 2370 9098

BAG electronics Inc.  
Laguna International Industrial Park  
Block 5 Lot 7, CNB Street,  
4024 Mamplasan, Biñan, Laguna,  
Philippines  
Tel: +63 49 539 0743  
Fax: +63 49 539 0740



The paper utilised for this brochure contains raw materials from sustainably cultivated forests and other controlled origins.

Technical modifications reserved  
10138621 Catalogue BAG 15-11 HCL EN