



Paving the way.  
Know how 2010.

**DIAL**  
light. building. software.



# DIAL

light. building. software.

DIAL stands for professional and independent knowledge and skills to do with light and building technology. Knowledge and skills for man and his environment. Knowledge and skills for the future.

- > We understand light and building technology as a means to improve the environment in which you live and work.
- > In our lighting seminars you learn how to find good light planning solutions systematically and independent of a specific product.
- > We train building systems designers – experts who analyse the owner's needs and develop the building technology to meet those needs – including all the skills and crafts involved and bearing the building as a whole in mind.
- > We develop DIALux – a tool with which you can quite simply plan better lighting.
- > We offer a wide range of seminars, planning, consulting and testing services.
- > Our services are manufacturer-independent and strictly oriented to what is needed in practice.

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All the seminar photographs shown here were taken during DIAL training courses in Lüdenscheid.

# DIAL. Ideas become reality.

**Then there was light.** The idea behind the foundation of DIAL was to provide the market with completely neutral and manufacturer-independent photometric and lighting design know-how. It was our aim to pursue application-oriented research and offer market-related services. The idea was the brainchild of leading development engineers and manufacturers who today as the DIAL Association e.V. are partners in DIAL GmbH together with the EGC GmbH. That was in 1989.

**The building technology division** with its seminars and laboratories was founded in 1992 with the launching of EIB (European installation bus, today KNX).

**DIALux.** 1994 saw the beginning of professional virtual light planning. In that year the development of the successful DIALux light calculation software began, triggered by the competition faced by individual luminaire manufacturers who wished to focus again on their core business, namely the development of luminaires. Many of our present partners were working with us when we started.

**Focussing on man.** This view has an ever increasing influence on the way we think and act. Since 2005 a long-cherished vision has begun to take shape. Complex building technology for humans means that we

have to think independently and in total concepts. Independent of technology and the individual skills and trades involved. With our attention focussed clearly on sustainability.

**Skills and know-how for the market** are what we pass on every day in our wide variety of seminars to people who work with this technology in practice. Since 2006 our programme has also included the successful training course Building Systems Designer – as distance learning with compulsory attendance phases, as a full-time training course or as individually bookable learning modules.





**DIAL.**

- > Seminars and workshops around light
- > Seminars and workshops around building technology
- > Measurement of lamps and luminaires in our photometric laboratory
- > Inspection and testing of KNX and DALI devices
- > DIALux light planning tool
- > Data management and software development
- > Planning and consulting

Dieter Polle and Andeas Bossow / CEOs at DIAL



**Our main partner** is the DIAL Association e.V. – an open association of companies from the lighting and building technology sector whose aim is to heighten **awareness for better light and its application in building technology**. DIAL was founded as a company operating according to the principles of the free market – something which it has done successfully so far.

**Today DIAL** is a dynamic company which operates freely and independently on international markets. Our team of 50 in the fields of light, building technology and software plan light, advise customers, measure luminaires, test KNX components and run seminars and workshops.

**We know our customers and their markets** and in dealing with each and every project we benefit from our own experience. Manufacturers, architects, planners and skilled craftsmen all value our market-oriented solutions, our reliable help and advice and our practice-related seminars.

**We are motivated** by the purpose and quality of our work and the way we work is characterized by transparency, respect, fairness and inquiring minds. We are committed and enthusiastic about our work and look forward to each new challenge.

DIAL. light. building. software.



## light.

We experience perfect light almost every day. Light which makes people feel good, optimistic, healthy and therefore enables them to be more effective. Daylight. This is the standard which we apply when handling the medium of light. In compliance with ecological and economic requirements.

We offer services in almost all fields of lighting.

- > Seminars and workshops
- > Measuring laboratory for lamps and luminaires
- > Light planning
- > Optics and reflector development
- > Consulting
- > Research

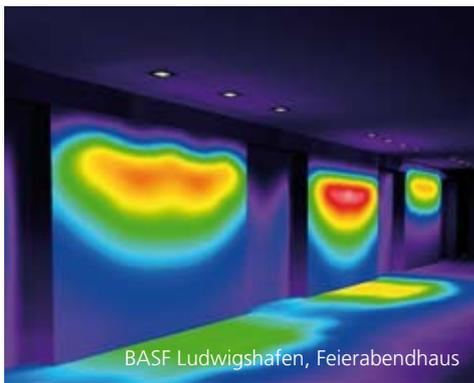
### **DIAL light seminars**

- > Expert for Lighting Design

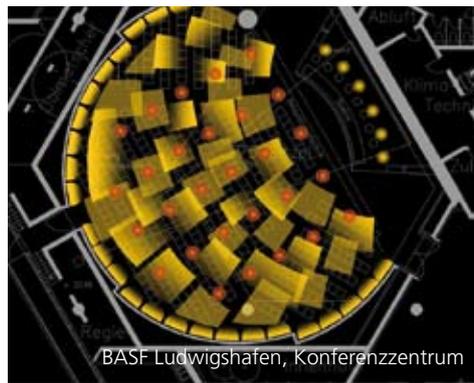
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DIAL. **light.** building. software.

Berker, Ottfingen



BASF Ludwigshafen, Feierabendhaus



BASF Ludwigshafen, Konferenzzentrum



comBOTS, Karlsruhe



Loher Wäldchen, Lüdenscheid



Spielplatz Luisenstraße, Lüdenscheid



Typakademie, Limburg

# Light. Planning.

**We plan light.** Professionally and with enthusiasm. Our fascination for working with light influences the way we work. Our range of services covers all fields of architecture. Indoors and outdoors. From lighting the home to prestigious lighting for public buildings and public spaces.

**Our philosophy** is clear and simple. We know that a minimum degree of light is necessary for you to work and find your way around. But we want more. We want people to have a feeling of well-being. We want them to experience and enjoy being in the indoor and outdoor spaces which we design. It is fundamental to our philosophy that light is not just there for its own sake. For us light is always an integral part of architecture whose inner and outer structure, whose building components and materials make demands on light. People themselves also have needs which go beyond simply wanting to find their way around.

**Light for people** has to activate them, invite them, integrate and guide them and sometimes fascinate. Even our health is influenced strongly by light.

Daylight is the ideal way to fulfil many of the demands made on light. There are however other requirements which can only be fulfilled with artificial light which we can stage discreetly and subtly and also dramatically.

**From lighting designer** to lighting designer: Our experience in planning flows directly into all we do – from our seminars to our **DIALux** light planning software. We always act completely independent of manufacturer and product. In this way we can ensure that the services we offer correspond in the best possible way to the constantly changing market environment.

**Our research into light** is market-related. Light planners can make practical use of what we develop and the advice we offer covers all questions and light planning tasks to do with architecture and town and country planning. As independent experts we analyse causes, carry out measurements and write expert reports on which you can build. Our expert reports ensure a clear view when dealing with installations with daylight or artificial light.



## Our range of services

- > Planning of indoor and outdoor architectural lighting
- > Research projects, also as affiliated project partner
- > Consulting / sample inspection of innovative lighting solutions in our experimental laboratory
- > Expert reports

## Contact:

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## Light. Optics and reflector development.

**Optics and reflector development** is the result of common projects conducted in conjunction with our customers in order to fulfil their concrete requirements.

Typical requirements are increasing the light output ratio, minimizing direct glare, optimizing light distribution and removing colour streaking in light projection.

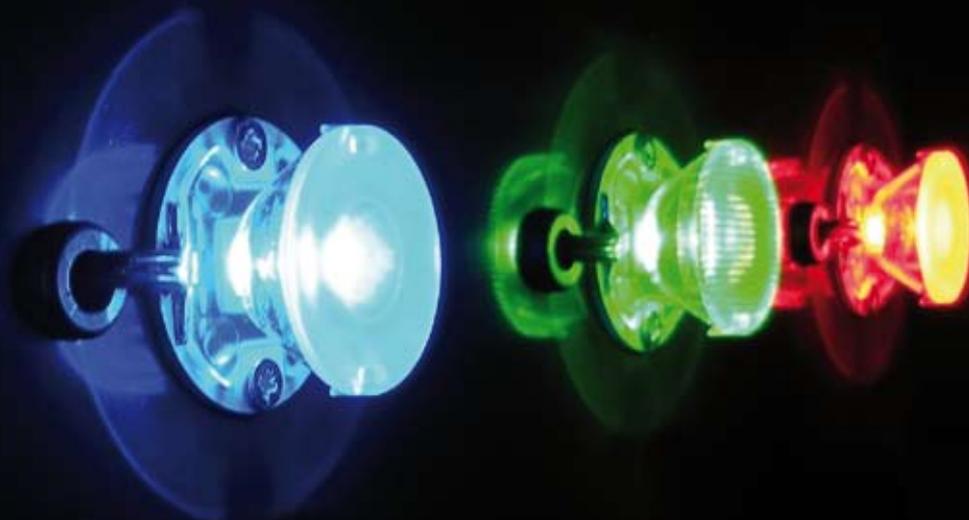
As LEDs are nowadays used increasingly in ambient and architectural lighting and only in rare cases does the LED chip have the required light distribution properties and the desired photometric properties, good optics design is imperative for LEDs of all per-

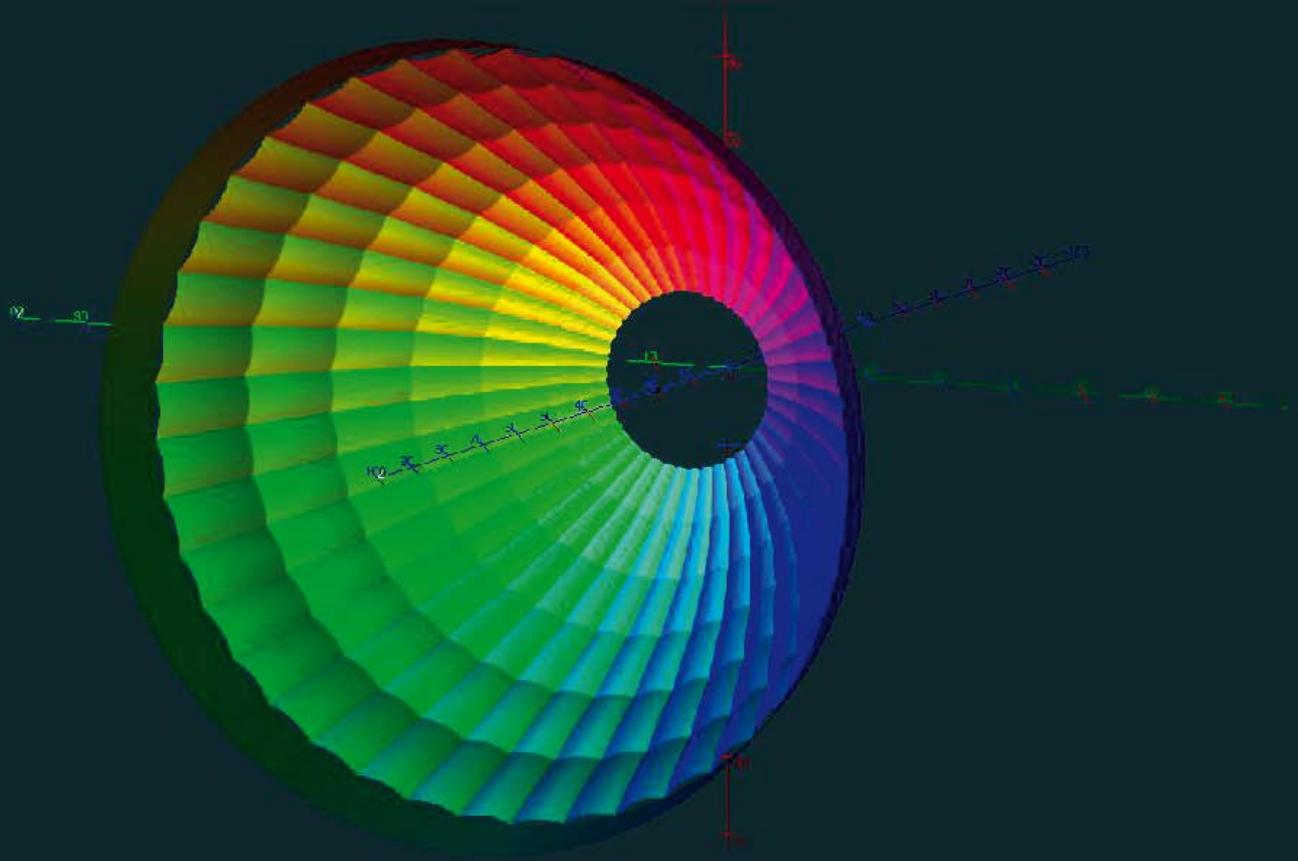
formance categories – and it goes without saying that thermal influences also have to be taken into account.

We benefit here from the experience we have gathered in photometrics over the last 20 years in addition to the development know-how acquired during our many years in the field of automotive lighting – 20 years ago LED optics were already being used in cars.

Side by side with our core competence in LED optics design we also develop reflectors and optics for all conventional lamps. We implement state-of-the-art software tools

which can simulate accurately any imaginable lighting effect. As well as details about light distribution the customer receives information about light output ratio and all the 3D data required for tool making.





#### **Our range of services**

- > LED optics design
- > Development and optimization of reflectors
- > Simulation of lighting effects
- > Generation of full design data
- > Validation in our own accredited photometric laboratory
- > Development at a fixed price

#### **Contact:**

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## Light. Photometric laboratory.



**DIAL tested.** We operate the first accredited manufacturer-independent laboratories of their kind in Germany. Our laboratories are certified in accordance with DIN EN ISO / IEC 17025 quality management and have been in operation since 1998. In 2007 we were accredited as fulfilling the S.A.F.E. requirements to acquire the Swiss MINERGIE label. At the centre of our photometric competence is the uninterrupted technological retraceability to the nationally and internationally valid standards for luminous intensity of the PTB (national measuring institute of the Federal Republic of Germany). We determine accurate photometric and colourmetric data and document the quality of your products with approval seals and test reports.

**Our quality management system** ensures reliability and reproducibility of each single measurement and is tested at regular intervals by the accreditation institute DATech.

It goes without saying that your research secrets are in good hands with us and that we will supply absolutely correct results on schedule and at the price agreed. That is why many of our customers look upon our laboratories and our staff as if they were their own.



#### Equipment

Precision measuring instruments for all photometric parameters:

- > Goniophotometer with rotating mirror with 4.5 m, 11 m and 18 m measuring distance
- > Goniophotometer with luminaire turning device with 12 m measuring distance
- > Integrating sphere photometer – diameter 3 m
- > Integrating sphere photometer – diameter 1.25 m
- > Optical bench – length 6 m
- > Mobile measuring instruments for luminance and illuminance
- > Spectral radiometer and colour measuring equipment

#### Colourmetric parameters

For any luminous source all the colour-relevant data within the visible range (380 - 780 nm):

- > Spectral power distribution
- > General colour rendering index Ra (according to DIN 6169 and CIE 1996)
- > Special colour rendering indices colour locus (x and y coordinates according to CIE chromaticity diagram)
- > Correlated colour temperature in Kelvin [K]

#### Measurement of lamp lumens

Any luminaire source up to a performance of 1,000 W

- > We ensure operation with appropriate ballast /control gear
- > We prepare for measurement in the correct burning – in cycle
- > We guarantee precision. Our maximum measurement inaccuracy is 2.5 %

#### After our measurements you will receive

- > a full measurement report with the light flux (lumen) of the lamp together with details of the electrical parameters
- > on request also classification of the energy efficiency according to EU directive 98/11/EU which is prescribed for “Lamps for household applications” and is identified by means of an energy label on the lamp

#### Measurement of luminous intensity distribution

We measure the characteristic light emission of all types of luminaires: surface-mounted, recessed, pendant, wall, standing, table luminaires

#### After our measurements you will receive

- > a measurement report with the luminous intensity distribution (LDC). The maximum measurement inaccuracy is 4,0 %
- > the light output ratio
- > the electrical parameters lamp current, lamp voltage and lamp performance,
- > LDC data in digital form, usually in the file format .ldt, on request also in any other photometric file format, e.g. .ies, .tm14, .lti
- > Full measurement report for certification of your luminaire according to MINERGIE requirements of S.A.F.E.
- > If you wish to have the same luminaire measured with different optical elements, then you will benefit from our favourable prices for subsequent measurements

#### Measurement of reflectance or transmittance

- > We determine diffuse reflectance or transmittance of all kinds of materials according to DIN 5036-3
- > As a light source reference point we use Standard Light A (2850 K) or Daylight D65
- > We also determine angle-dependent degrees of reflectance or transmittance

## Light. Measuring laboratory.



## Price List for Photometrical Tests

As per: 04.01.2010  
exclusive 19% VAT

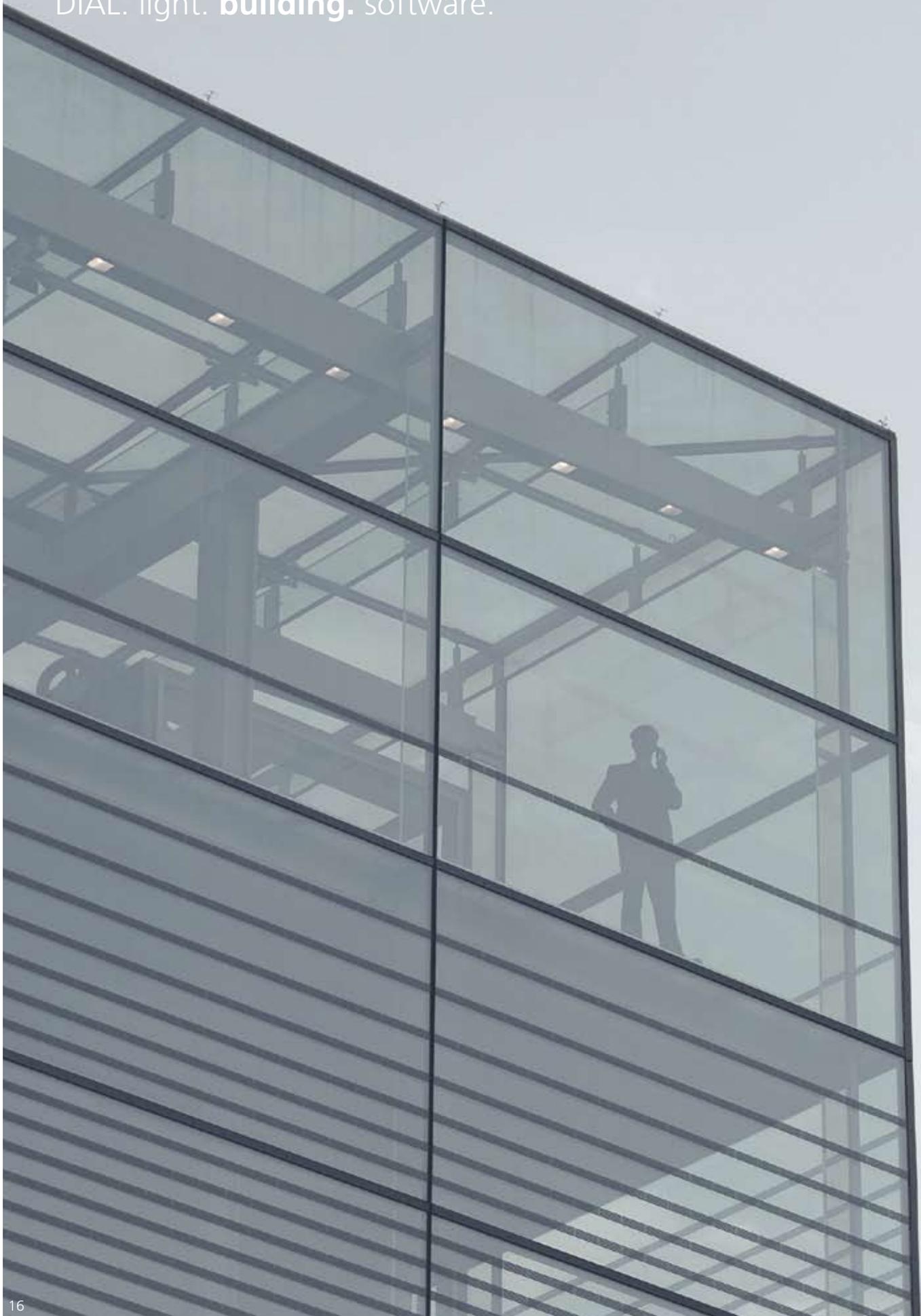
### Quick Service:

On demand you receive the results within 24 hours, provided it is technically possible.  
We charge an additional mark-on of 100%.

	<b>Luminous flux</b>	
<b>A</b>	> Measurement according to DIN 5032-1, 2, 4 and EN 13032-1 > Measurement of any lamp types > Uncertainty of measurement max. 2,5%	
<b>A1</b>	Measurement of the luminous flux $\Phi$ , Lumen [lm]	260,00 €
<b>A2</b>	Determination of the Energy-Efficiency class according to EU-Regulation 98/11/EC (Measurement of 1 lamp)	290,00 €
<b>A3</b>	Determination of Energy-Efficiency class according to EN 50285 (Measurement of 20 lamps on the same type) according to EU-Regulation 98/11/EC	4.500,00 €
<b>A4</b>	Determination of the lamp properties according to EU-Regulation 244/2009 (price is charged for one lamp measurement)	900,00 €

<b>B</b>	<b>Luminous intensity distribution</b> > Measuring method according to EN 13032-1 > Photometric results as LDT or IES file > Uncertainty of measurement max. 4%	
<b>B1</b>	Measurement of light fixture with direct <b>or</b> indirect light (lower hemisphere up to gamma=90°)	400,00 €
<b>B2</b>	Subsequent measurement on B1 light fixture (lower hemisphere up to gamma=90°)	300,00 €
<b>B3</b>	Measurement of light fixture with direct <b>and</b> indirect light (both hemispheres up to gamma=180°)	600,00 €
<b>B4</b>	Subsequent measurement on B3 light fixture (both hemispheres up to gamma=180°)	500,00 €
<b>B5</b>	Measurement of street light fixture with direct light (pole-top and pole-bracket mounted fixtures)	530,00 €
<b>C</b>	<b>Light output ratio, LOR</b> > Additional to measurement B1 -B5 > Measuring method according to EN 13032-1 > Uncertainty of measurement max. 4%	$\eta$
<b>C1</b>	Renting a lamp luminous flux which is already measured by DIAL (price is charged for each luminaire measurement)	50,00 €
<b>C2</b>	Measurement of luminous flux on customer specific lamp/gear (afterwards valid for 12 months)	230,00 €
<b>D</b>	<b>MINERGIE-Measurement</b> > According to S.A.F.E -method (Switzerland) > Uncertainty of measurement max. 4%	
<b>D1</b>	Measurement of light fixture with direct <b>or</b> indirect light and <b>fluorescent</b> or <b>compact fluorescent lamp(s)</b>	1.200,00 €
<b>D2</b>	Subsequent measurement on D1 fixture	500,00 €
<b>D3</b>	Measurement of light fixture with direct <b>and</b> indirect light and <b>fluorescent</b> or <b>compact fluorescent lamp(s)</b>	1.400,00 €
<b>D4</b>	Subsequent measurement on D3 fixture	700,00 €
<b>D5</b>	Measurement of light fixture with direct <b>or</b> indirect light and <b>solid-state lighting (LED)</b>	600,00 €
<b>D6</b>	Subsequent measurement on D5 fixture	500,00 €
<b>E</b>	<b>Emergency lighting fixtures</b> > According to EN 1838 > According to ISO 3864-1 (DIN 4844-1)	
<b>E1</b>	Absolute* luminances [cd/m <sup>2</sup> ] and colour-coordinates x, y (CIE 1931 chromaticity diagram) on the emergency sign surface * If standardised luminance values [cd/m <sup>2</sup> /klm] are requested, one additional measurement A1 is necessary	600,00 €
<b>E2</b>	Subsequent measurement to E1 – Any other surfaces and pictograms	400,00 €
<b>F</b>	<b>Colorimetric measurements</b> > according to CIE 1996 and DIN 6169-2 > spectral resolution 1 nm	
<b>F1</b>	> spectral distribution of any lamp types in a band of 380-780 nm > documentation of correlated colour temperature in Kelvin [K] > determination of colour rendering index CRI	190,00 €
<b>F2</b>	Package price A1 and F1 – Measuring of luminous flux and spectral distribution	390,00 €
<b>G</b>	Reflectance $\rho$ and transmittance $\tau$ according to CIE 38 and DIN 5036-3	
<b>G1</b>	Determination of the scattered and total grade of reflectance $\rho$ or transmittance $\tau$ for one pattern* under 8° light direction.*Pattern dimension min. 10 x 10 cm	490,00 €
<b>G2</b>	Subsequent measurement to G1: Reflectance or transmittance for additional patterns under 8° or additional angles on the same pattern (20°, 30°, 40°, 50°, 60°, 70°).	100,00 €
<b>H</b>	Order processing and additional services	
<b>H1</b>	Order processing (per order)	100,00 €
<b>H2</b>	Derivation of photometric files on original measurement (only for identical lighting fixtures, identical lamp geometry and approximately same optics), per LDT or IES file	100,00 €

DIAL. light. **building.** software.





## building.

Buildings are made for people. Building technology should serve those who use the building. Building technology should ensure that the user feels good, feels safe and feels comfortable and the building should at the same time be energy efficient. We take a good look at the building and its technical installations with ecological and economic aspects in mind – and not only for the planning and building stage but also for the full period of use.

We provide you with the latest know-how in many fields of building technology.

- > Seminars and workshops
- > Building technology training course
- > Test laboratory for KNX + DALI devices
- > Product documentation
- > Consulting
- > Expert reports

**DIAL seminar for building technology**  
> EIB / KNX Projecting and Commissioning

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DIAL. light. **building.** software.



# Building technology. Planning. Consulting. Expert reports.

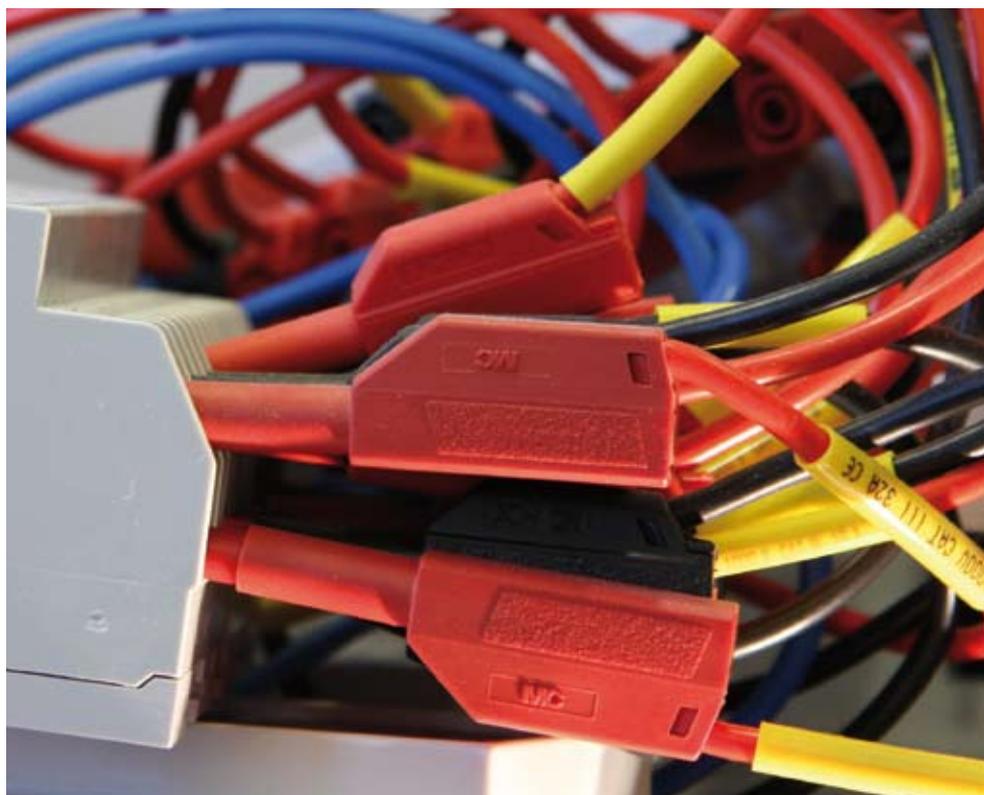
**Building technology** makes our heart beat faster. Our highly motivated team of experts will support you with absolutely neutral advice and opinions or expert reports for the whole KNX, LON and DALI environment. We look and think in total concepts. What we do is based on our wide experience in research, teaching and project work.

**Consulting, expert reports, seminars and the testing laboratory** form a complete range of services which allow cross-border thinking, enabling us to identify and focus our attention on all aspects involved.

**We develop total concepts** for building technology and accompany you on the path to completion. We would also be pleased to assist you in optimising existing installations or individual components. With our know-how and experience we will, if the issue arises, analyse the function and quality of the performance of your KNX, LON and DALI installation and will prepare a neutral expert report.

**International documentation for products.** We can complete this and prepare the text and layout for you. Our qualified staff know about the functions and applications of complex devices and can test and measure these directly in our testing laboratories. We can prepare professional documents with photos, graphics and charts according to your wishes and requirements in all the usual electronic or printed formats.

**If you have questions or tasks** to do with building technology, we are the right people for you. Whatever your requirements, we will develop professional solutions in line with the market, focussing on the building's purpose and the user's comfort and convenience and paying full attention to the requirements of the customer.



## Our range of services

- > Project development/consulting services as building systems designers
- > Projecting/support for KNX, LON and DALI projects
- > Completion of technical documentation
- > Expert reports for KNX, LON and DALI installations
- > Research projects as affiliated partner

## Contact:

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## Building technology. **KNX and DALI testing laboratory.**

**The first accredited EIBA / KNX laboratory** was here at DIAL. In our laboratory we conduct neutral tests for software and devices and also support you with a testing service during the development phase. In addition we test stack implementation – we are the only testing centre worldwide qualified to do this.

**For more than ten years** we have been testing software in our test centre. Innumerable devices, combinations and applications have succeeded in acquiring certification with our services. Primarily the interworking of devices in the physical medium is tested by testing the behaviour after stimulation (from bus or on device).

**Tests during development.** Frequently the compatibility of the devices and/or software with KNX standards is tested and errors are identified before putting the product on the market. Our experience in testing is also popular for other product and software tests. For example we carry out pre-serial testing in cooperation with product development departments to provide necessary early verification.

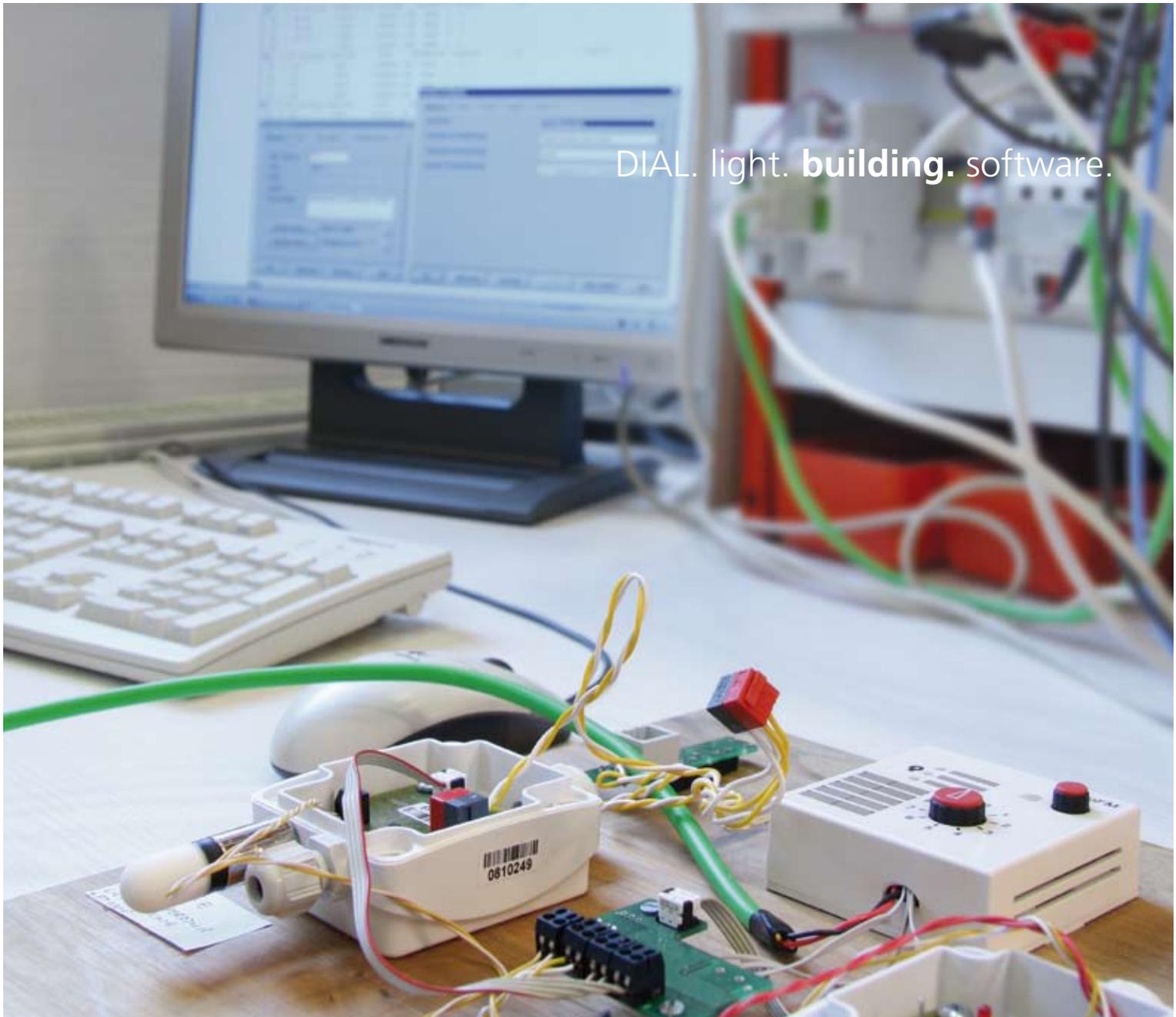
**Final certification tests** can then be simplified by using the existing test frequencies. As a rule certification is then possible after a short repeat test.

**Commissioning tools or plugins** for complex devices are also tested and documented in our testing laboratories.

**DALI tests** and protocol analysis are run with the standardized DALI tester. We provide services as an independent institute whenever there are any queries regarding the implementation of DALI devices from different manufacturers.

**Financial benefits.** With the help of our systematic testing, errors are detected at an early stage. These can then be remedied prior to serial production, therefore helping to prevent expensive recalls, loss of reputation or problems for the user. It goes without saying that our work on all the projects is completely manufacturer-independent and that all the test results are documented in detail. Our documentation forms the basis for obtaining the KNX logo.





**Testing laboratory  
Range of services**

**KNX Interworking**

- > Testing interworking and functionality in accordance with the Konnex Association Handbook

**Pre-serial testing**

- > Release for production testing as pre-serial testing or finished product testing

**KNX stack tests**

- > Management services
- > Link Layer data part
- > Network Layer
- > Transport Layer
- > Application Interface Layer
- > Local Service

**Link Layer Physical part and Physical Layer**

- > Testing on site together with the customers (witness test)

**KNX special software**

- > Testing of KNX special software (programming tools, LCD tools, ...)

**Other software**

- > Testing of Windows-based software

**DALI tests**

- > Protocol tests with standardized DALI tester
- > Neutral clearance centre

**This is what you can expect from us:**

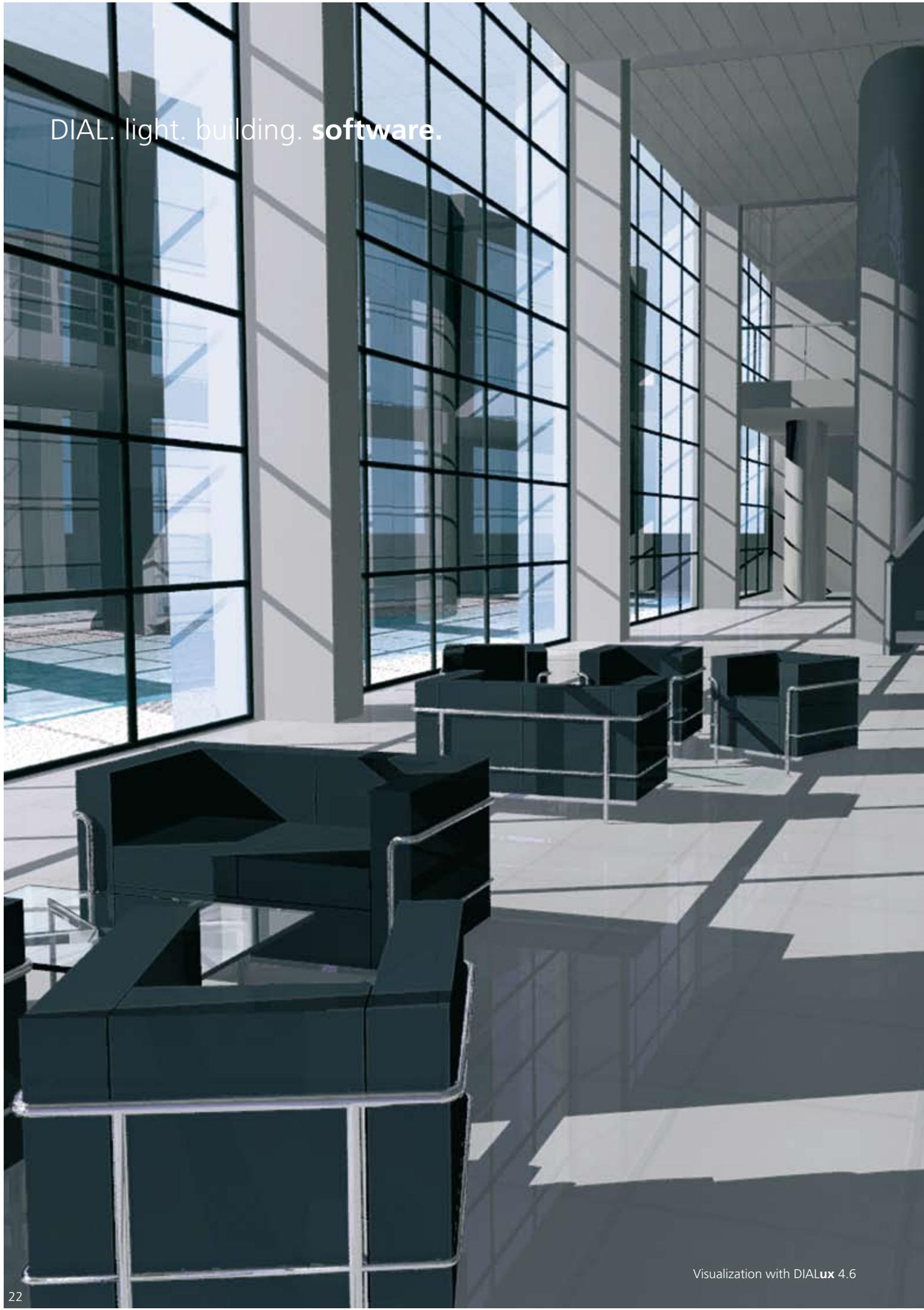
- > Absolutely manufacturer-independent
- > Complete confidentiality
- > Well-proven and "living" quality management system in accordance with DIN EN ISO/IEC 17025 with annual accreditation by the Konnex Association
- > Completion on schedule
- > Specialist team with a wealth of experience



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## software.

**DIAL. The software specialist for light and building technology.**

We develop software for intelligent light and building technology. Software designed for the user. With intuitive user guide and easy to understand icons and assistants. We develop electronic tools which simplify daily work and delight users all over the world.

We make use of our core competence in light planning, photometry, building technology and IT to develop software for the light and building industries.

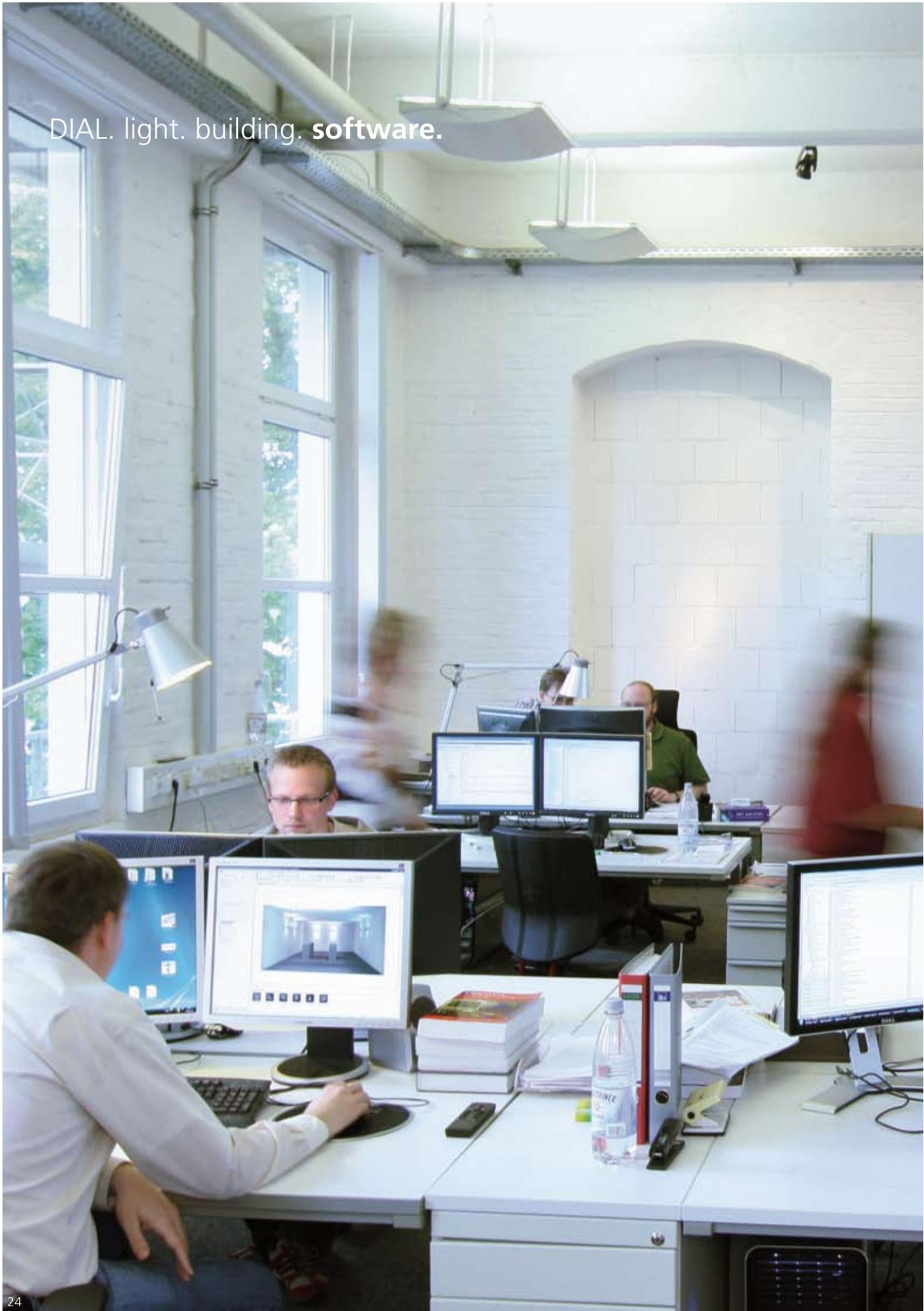
- > DIALux light planning software
- > Electronic catalogue plugins
- > Software development
- > Data management systems
- > Consulting

### **DIAL software seminars**

- > DIALux user training

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# Software. DIALux. By planners for planners.

**DIALux. The free and complete software** developed by us for professional light planning is open to luminaires of all manufacturers. A software by planners for planners. Used by over 350,000 light planners and designers worldwide. And their number is growing from day to day.

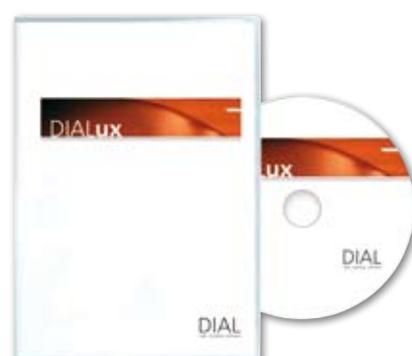
Create your virtual worlds simply and intuitively with **DIALux**. Document your results in breathtaking, photorealistic visualizations. Delight your customers with daylight and artificial light scenarios through which they can glide with wild camera runs. Rely on the CAD data of other architecture programmes and re-export your files easily. Or use any 3 D models from the Internet – it's child's play. While you plan creatively, **DIALux** determines the energy your light solution requires and supports you in complying with the respective national and international regulations.

**DIALux** is continuously being developed by a team of 20. You can plan in **DIALux** with the luminaires of the world's leading manufacturers and therefore have the greatest possible freedom in the design process. And the list of international partner companies is getting longer and longer.

Work with **DIALux**. You and your projects deserve it. **DIALux** is free of charge and can be downloaded from our website in many languages.

## Your benefits at a glance:

- > Simple, effective and professional light planning
- > Latest luminaire data of the world's leading manufacturers
- > Latest state of the art software always available free of charge
- > Energy evaluation at the drop of a hat
- > Coloured light scenes with LED or other colour changing luminaires



- > Free download under [www.dialux.com](http://www.dialux.com) and from partner websites
- > CD-ROM can be ordered from DIAL GmbH, Lüdenscheid (15,- €)
- > Free distribution via CD-ROMs of project partners



# Software. DIALux.

## Lighting design. It couldn't be simpler.

For many years DIALux has been the international market leader for light planning software. Over 350,000 users value its intuitive user guide and its realistic visualizations as well as its technical perfection and the easy access to current planning data.

### DIALux. Visualization.

- > **Planning with LED luminaires** and other coloured light sources, colour filters and coloured materials
- > **Interactive 3D visualization** allows you **to just wander round the room**
- > **Film the camera run** through the photorealistic visualization of your planning and send the film by email.
- > **Realistic textures** and furniture
- > **Integrated ray tracing** module for photorealistic presentation

### DIALux. Using the software.

- > **Simple light planning** – step by step with DIALux
- > **Assistants help** on request with the planning of indoor and street lighting.
- > **Drag and drop** for simple insertion of furniture, surfaces (textures) and luminaires into the room
- > **Automatic positioning** of the right number of luminaires on the walls and in the room
- > **Intelligent building components** always place the wall lights correctly on the wall and the computer on the table
- > **With one click luminaires** are aligned to the illumination point
- > **Step by step guides** help with special questions on light planning

### DIALux. Functional highlights.

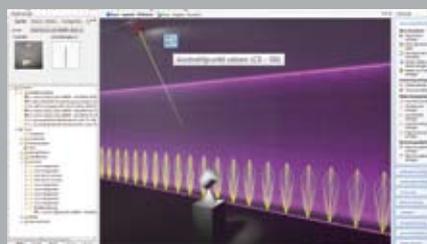
- > **The latest calculation methods**, now even faster and always accurate
- > **Energy evaluation** according to DIN V 18599 and EN 15899 takes place as you use the program and is useful for your energy pass
- > **Integration of 3DS objects** in the light planning
- > **Import and export** of .dwg\_ and .dxf\_ files. These can be read in and exported with the results after light planning is complete. Without additional software
- > **DIALux automatically finds** the optimal product from a list of street luminaires according to performance criteria and explains why
- > **False colours** supply quantitative analyses in complex geometries at a glance
- > **Emergency lighting** according to EN1838. Positioning of the correct number of luminaires
- > **Sports complex planning** with templates for all common sports. Real time calculation, measuring grids and mirroring of post arrangements simplify planning



**Complete.** All the application fields which a planner is involved in are covered by DIALux ( indoors, outdoors, street lighting, emergency lighting...)



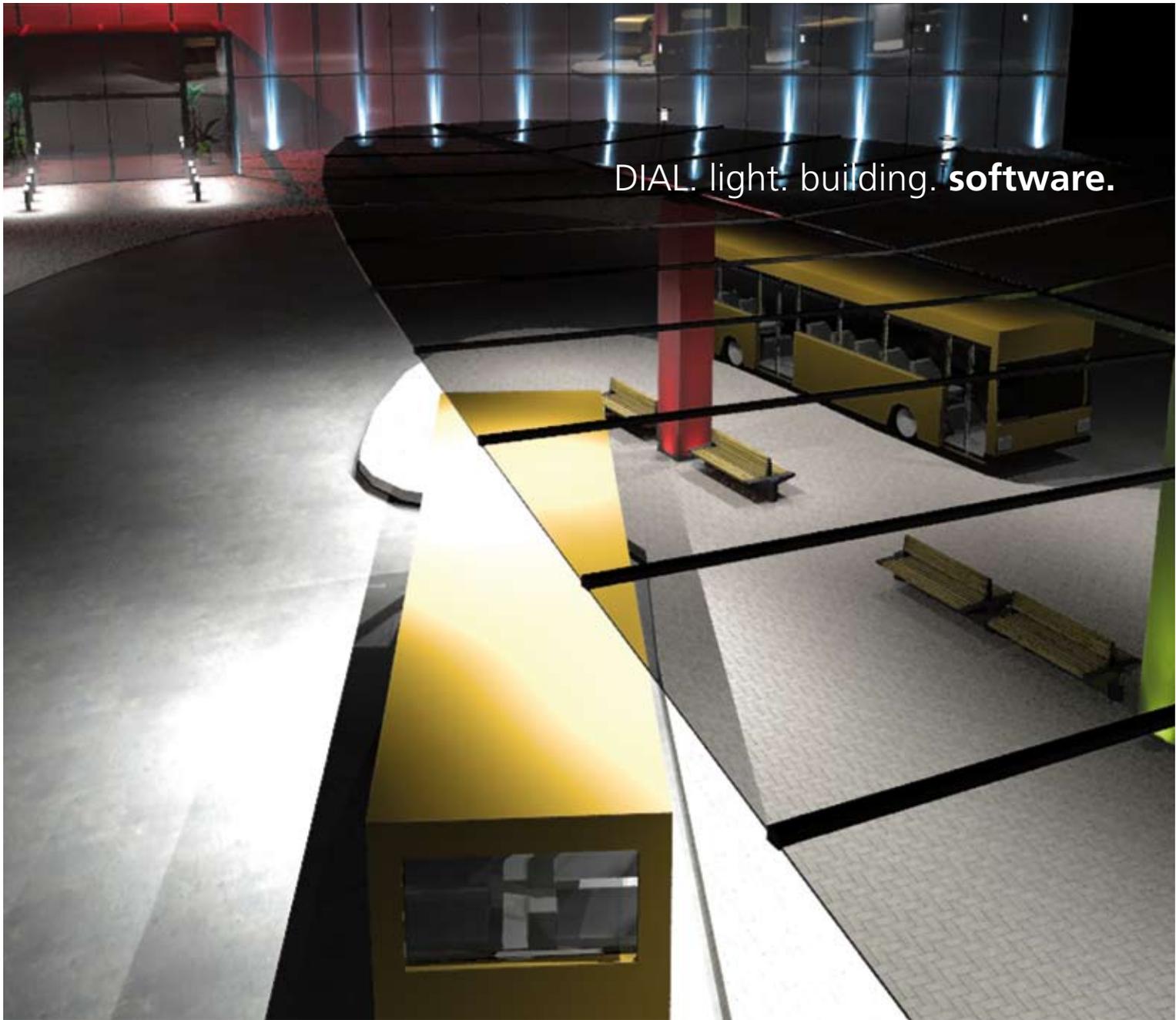
**Drag and drop.** It is so easy to insert furniture, surfaces (textures) and luminaires in a room.



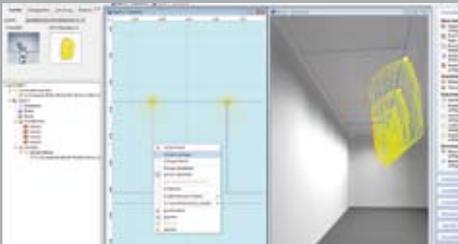
**Aligning luminaires.** Just one click on the illumination point and the light is right.



**Assistants.** They help in the planning of indoor and street lighting.



DIAL. light. building. software.



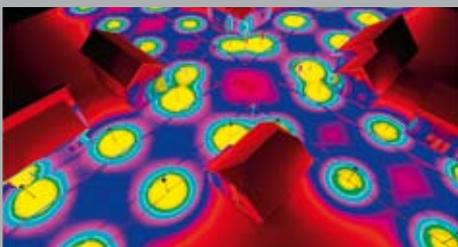
**Positioning aids.** Automatic positioning of the right number of luminaires on walls and in the room.



**Daylight.** Perfect calculation and visualization of realistic situations.



**3DS Import.** Integration of any 3DS objects, e.g. from the Internet into the light planning



**False colours.** False colours supply quantitative analyses in complex geometries at a glance.



**Sports complex lighting.** Templates for all common sports. Real time calculation, measuring grids, mirroring of post arrangements and so much more simplify the planning.



**Colour.** Planning with colour filters, coloured light sources and coloured materials.

# Software. DIALux.

## The marketing platform for lighting manufacturers.

A continually increasing number of international manufacturers of lamps and luminaires have decided to become DIALux partners.

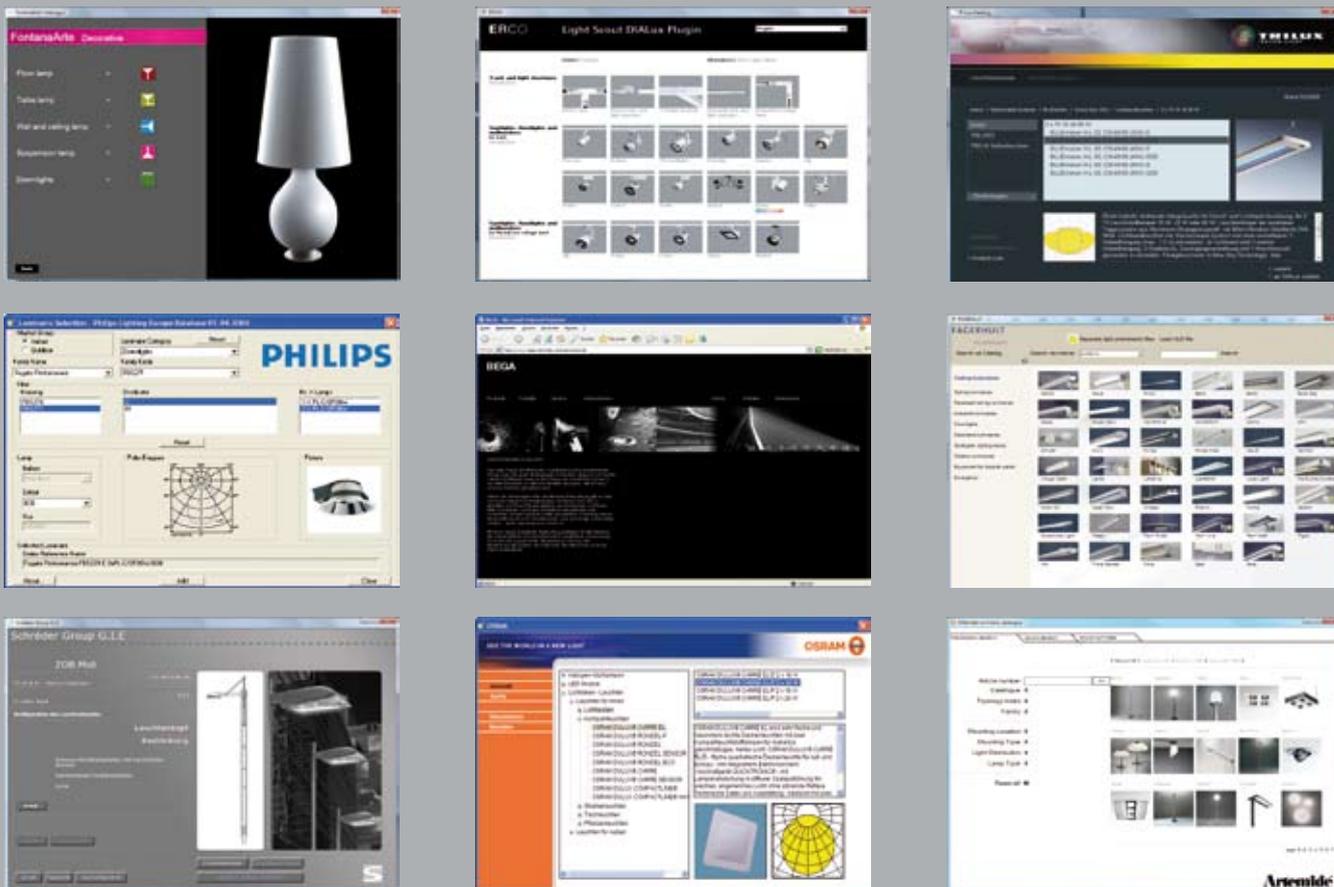
### DIALux. For our partners.

- > **Over 350,000 users** and a worldwide network of planners and architects notice your presence at every stage of their planning. And their number is growing from day to day.
- > **In individual electronic catalogues** luminaire manufacturers can present their products and so make these available to planners for their light planning. The corporate design is also transmitted together with the product.
- > **It is free of charge and there are no restrictions** for DIALux partners when distributing the software and the data and plugins to their customers on CDs or on the Internet.
- > **With 26 languages** to date DIALux is available in all the important languages of the world.



Realistic 3D models of your luminaires can make use of the design of your luminaire as a sales argument in planning.

## DIALux. project partners. March 2010

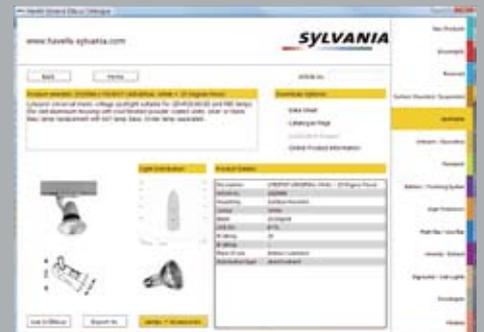
Examples of electronic catalogues of various manufacturers as plugins for use with DIALux. The corporate design of the manufacturer continues to be shown here.

						Concord		
			ERCO	ES-SYSTEM			FAGERHULT	
		Indal	INSTA				WE LOVE LIGHT KOTZOLT	
louis poulsen								
	siteco		Spectral					
		ZUMTOBEL						

# Software. IT service. We keep your data form.

The IT service team develops individual electronic product catalogues and matching product data management systems as plugins for DIALux or as a medium-neutral system for Internet use. We advise you on the organisation of product data or assist you in all questions to do with content management and software development.

We make use of our core competence in light planning, photometry and DIALux in our software development and in our work for the lighting and building industries. This experience and our knowledge of product data management processes of all the leading luminaire manufacturers means that we know the needs of the market.



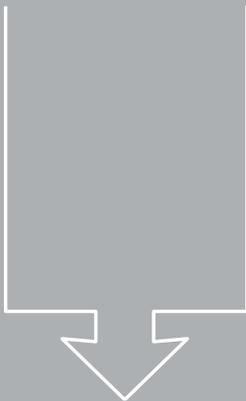
Examples of electronic catalogues which our IT team have developed for manufacturers as DIALux plugins.



DIAL. light. building. **software.**



With the product data and the corporate design guidelines of the manufacturers we develop individual electronic catalogues. Users all over the world work on this platform in DIALux. In this way the selected luminaires and their manufacturers are presented perfectly in the company's own image.



#### Our range of services

- > Development of product catalogues on the Internet or as offline version
- > Development of luminaire and lamp plugins for DIALux
- > Development of product data management systems for maintenance of product catalogues
- > Advice on the organisation of product data within the company
- > Answers to nearly all software questions

DIAL. light. building. software.





## DIAL. Training. Seminars and training courses.

DIAL seminars mean together. Learning together. Experiencing together. Working together. Experiencing and understanding of contexts in the literal sense of the word. No chalk and talk teaching but a constant dialogue. We teach according to the principle of learning by doing. In our seminars you do not just learn but experience knowledge and skills. You absorb what is new with all your senses. You never forget processes which you have performed and experienced yourself. You can immediately apply your new knowledge and skills reliably in practice and acquire a competitive advantage. On the market or in your company.

We work and teach independent of manufacturer. So your interests and not ours are at the centre of our attention. We always have the latest information at our fingertips and react flexibly and individually to your wishes. Honest enthusiasm for good light and building technology is what drives our lecturers who pass on this enthusiasm to you in every seminar.

With us you feel good light, understand effective building technology and are enchanted by virtual worlds of light.

DIAL. Learning is fun this way.

### **light.**

Expert for Lighting Design > p. 34

### **building.**

EIB / KNX Projecting and Commissioning > p. 36

### **software.**

DIALux user training > p. 38

### **Your benefits at a glance:**

- > Practice-oriented seminars – immediate application of skills and knowledge
- > Learning with all the senses – it's fun and it sticks
- > Completely manufacturer-neutral and up-to-date information
- > Lecturers are nearly always DIAL employees



## Seminar. **Expert for Lighting Design.**

You would like to plan and design lighting which makes people feel good, which does justice to the object and its architecture, which harmonizes with the daylight available, which takes the properties of the building materials into account, which supports productivity, which creates an atmosphere.

Our five-day seminar "Expert for Lighting Design" will show you how to achieve this.

Here you will systematically work through the processes of comprehensive lighting design which take all these aspects into consideration. You will develop and put into practice all the planning steps from analysis of the object through the development of a concept to creating the dimensions and selecting the luminaires. We work without a

PC, but instead use pencil and paper and – what is most important – a feeling for light. You will experience how logically a lighting concept develops. Your trainer will support you in focussing on essentials. You will learn and practise how to plan and design good lighting, and also how to present your ideas clearly and with good arguments, e.g. when competing with other lighting concepts.

After a short examination, which you will pass without any problems if you have taken an active part in the seminar, you will receive a certificate which qualifies you as an "Expert for Lighting Design for Indoor Lighting".

Further information about which languages our seminars are offered in and how to enrol can be found under [www.dial.de](http://www.dial.de).

### YOUR LECTURERS

**Jürgen Spitz**

**Andreas Picklein**

**Klaus Bieckmann**

**Cornelia Wuttke**

**CERTIFICATE**

### Day 1

- > Daylight as the basis for planning artificial light
- > Human perception as a basis for lighting design
- > Working with architectural plans, developing sections and ceiling layout
- > Analysis of objects: lighting requirements according to function, architecture and psychology
- > Terminology to describe the qualities of light
- > Formulating lighting concepts

### Day 2

- > Systematic selection of lamps
- > Working with different colours of light, according to light and material
- > Lighting strategies: differences in light distribution in a room (e.g. direct lighting, indirect lighting, wall lighting...) and appropriate luminaires
- > Applying the strategy of direct lighting, both illumination of a larger area as well as lighting accents
- > Direct lighting: positioning of luminaires and dimensioning

### Day 3

- > Strategies of indirect lighting, large areas and accent lighting
- > Strategies for wall lighting: wall washing, lighting accents on walls, grazing light
- > Wall lighting: designing scallops

### Day 4

- > Enhancement strategies (lighting from the floor, direct / indirect lighting)
- > Combining individual strategies into a complete concept
- > Luminaire selection, arrangements and dimensioning
- > Presentation of and argumentation for overall plan

### Day 5

- > Overall plan of a real, complex object to consolidate the planning steps studied
- > Presentation of results
- > Final examination
- > Closing discussion

### Your benefits at a glance:

- > Learning about comprehensive light planning with the function and requirements of architects and users in mind
- > Developing a feeling for good light
- > Experiencing light in practical exercises and workshops
- > Developing presentation techniques for selling lighting concepts



# Seminar. EIB/KNX Projecting and Commissioning.

## Your benefits at a glance:

- > Recognized EIB / KNX certificate
- > Manufacturer-independent and neutral
- > High proportion of practical exercises with ETS Professional
- > Up-to-date seminar contents developed in co-operation with the KNX Association and industry
- > This course is the basis for manufacturers' EIB / KNX product seminars
- > Compact – everything you need to know about EIB / KNX in only five days

Professional planning, projecting, commissioning and error detection require a sound knowledge of EIB / KNX.

You become familiar with the EIB / KNX technology and learn how to plan and commission EIB / KNX installations with ETS (Engineering Tool Software). A basic knowledge of Windows is recommended.

You will install the EIB / KNX devices and put them into operation. If something does not work, we will show you how to find and remedy errors in EIB installations. If you register in the KNX online shop, you will receive an ETS Trainee free of charge. After passing the final exam, you will be awarded the recognized EIB / KNX certificate and have the option of joining the EIB / KNX partnership

and will receive a voucher for a discount of 12.5% on the cost of an ETS Professional licence.

Additionally you will receive the following manuals in printed and electronic form:

- error detection manual
- projecting manual  
overview of group addresses/physical addresses
- commissioning manual

Further information about which languages our seminars are offered in and how to enrol can be found under [www.dial.de](http://www.dial.de)

## YOUR LECTURERS

**Marc Kunikowski**

**Tobias Kleine**

**CERTIFICATE**





### Day 1

- > Basic principles
- > Basics of EIB / KNX
- > Differences between EIB / KNX and conventional installation, examples and possibilities of EIB / KNX technology
- > Group addresses and objects, block diagrams
- > ETS Professional: principles and basic settings, setting up a project, practical exercises in the laboratory

### Day 2

- > Communication
- > Flags, DTP (data point types), telegram structure, priorities, CSMA / CA, EIB / KNX hierarchy, couplers
- > Projecting
- > Optimum distribution of the EIB / KNX structure within the project

- > Practical work in the laboratory, e.g. controlling of light, shutters, heating
- > Documentation of the project

### Day 3

- > Summary and installation rules
- > Summary of projecting steps and short survey of essential steps
- > Directives for installation, commissioning of one line
- > EIB / KNX power line (EIB / KNX transmission via 230 V)
- > Theory and practical exercises in our training laboratory

### Day 4

- > Diagnosis
- > Diagnosis functions of ETS Professional, systematic error detection, discussion of the error detection guide
- > Installation, commissioning, error detection
- > Installation of a new line, detecting and remedying projecting errors

### Day 5

- > Error detection
- > Detecting and remedying installation and commissioning errors
- > Theoretical and practical exam according to KNX Association rules
- > Awarding of certificates, final discussion

# Seminar. DIALux user training.

## Your benefits at a glance:

- > Professional introduction to the DIALux software
- > Target-oriented implementation of your indoor and outdoor light planning
- > Tips and tricks for experienced users
- > Individual support in small groups

In this three-day seminar you learn what DIALux can do. You learn to use the software with its high-performance features for target-oriented implementation of your light planning. You can create professional documentation with conclusive calculations and impressive pictures.

DIALux can do more than you imagine. You will learn how to prepare all the photometric calculations and approval documentation according to all important lighting standards – something which should go without saying for light calculation software.

It will be child's play to create visualizations and animations for a photorealistic impression of a room. You will be able to compare different ways of lighting a room or observe

the different lighting scenes. And with the variety of outputs provided you can react quite individually to the requirements of the customer.

Our team of committed trainers will lead you through the seminar with their knowledge of lighting design and technical know-how. The training course is made up of modules. For each module there is a practical exercise which you work through on your own. Our lecturers will of course be there to help whenever you have questions. You can experience modern training in a professional working environment here in our company with the movers and shakers from DIALux.

## Seminar also in French, Italian, Spanish and Turkish.

Further information about which languages our seminars are offered in and how to enrol can be found under [www.dial.de](http://www.dial.de).

## YOUR LECTURERS

Jürgen Spitz

Andreas Picklein

Klaus Bieckmann

Cornelia Wuttke

CERTIFICATE





### Day 1

- > Using the DIALux light assistant
- > DIALux interface – what can I find and where?
- > Importing a DWG / DXF file
- > Creating an indoor or outdoor scene
- > Positioning furniture and objects
- > Colouring and texturing surfaces
- > How to use DIALux luminaire plugIns
- > Importing any manufacturer's luminaires
- > Positioning and configuring luminaires

### Day 2

- > Configuring basic settings
- > Creating furniture and objects
- > Importing and exporting the objects created
- > Importing textures
- > Light colour and surface colour
- > Creating different light scenes for a room
- > Sunlight and daylight calculation
- > How to handle calculation surfaces
- > Organizing the calculation results
- > DXF / DWG export
- > Animation (camera motion)

### Day 3

- > Planning emergency lighting in accordance with EN 1838
- > Street lighting in accordance with EN 13201
- > Visualization with the integrated ray tracer
- > Preparing normative verification in accordance with EN 12464-1 or EN 12464-2 (working area and its surroundings, UGR, GLG, maintenance schedule)
- > Evaluation of energy efficiency in accordance with EN 15193

# DIAL. Your lecturers.



## **Klaus Bieckmann**

Graduate Engineer (Dipl. Ing.) Interior Design  
Lecturer in the LightTeam, also engaged in light planning and configuration;  
Preparation of expert reports  
LightTeam, DIAL GmbH



## **Andreas Picklein**

Graduate Engineer (Dipl. Ing.) Light Technology  
Engaged intensively in light research, planning and expert reports, lecturer on light since 2000;  
Head of Laboratory LightTeam, DIAL GmbH



## **Andreas Bossow**

Graduate Engineer (Dipl. Ing. and Dipl. Wirt.Ing.)  
Director of Building Technology Division  
Project leader for Building Systems Designers  
Deputy CEO, DIAL GmbH



## **Domenico Prono**

Lighting designer and lecturer at various universities in Italy, an expert for generations on light, lighting design and architecture;  
DIAL / DIALux consultant for Italy and trainer for DIALux users freelance



## **Dietmar Half**

Graduate Engineer (Dipl. Ing.) Architecture  
At DIAL since 1998 and freelance architect for all stages of planning in accordance with HOAI.  
Main focus: project management for new buildings, conservation, renovation, preservation of historical monuments and buildings;  
Building Technology Division, DIAL GmbH



## **Jürgen Spitz**

Graduate Engineer (Dipl. Ing.) Interior Design  
Lecturer for light planning, many years of work experience in the field of lighting design, planning and configuration;  
Preparation of expert reports  
Team leader of LightTeam, DIAL GmbH



## **Tobias Kleine**

Master electro technician, Chamber of Trade diploma in business management  
Over five years experience with lighting technology and building automation systems.  
Trainer for LON, certified EIB / KNX trainer  
Building Technology Division, DIAL GmbH



## **Christian Weber**

Electrical engineering (communication technology), system administrator, lecturer for computer technology, computer and network security and Internet since 2000;  
Building Technology Division, DIAL GmbH



## **Marc Kunikowski**

Graduate Engineer (Dipl. Ing.) Electrical Engineering  
Specialising in energy technology, engaged since 1998 in adult training as a certified EIB / KNX;  
Lecturer, documentation of EIB / KNX components;  
preparation of expert reports for EIB / KNX systems;  
Building Technology Division, DIAL GmbH



## **Cornelia Wuttke**

Graduate Engineer (Dipl.Ing.) Architecture  
Lecturer in the LightTeam, also engaged in light planning;  
LightTeam, DIAL GmbH



## **Peter Leinwand**

Graduate Engineer (Dipl. Ing) Mechanical Engineering  
Development engineer worldwide for the automotive industry in the field of photometric systems;  
Engaged intensively in the development of optics and reflectors;  
LightTeam, DIAL GmbH

Enrolment for seminars.  
**Light, Building Technology and DIALux.**  
Telefax +49 23 51 10 64·361



**Expert for Lighting Design**

Price: 2.213,40 €  
Appointments in Lüdenscheid:  
 19.04.–23.04.10  
 22.11.–26.11.10

**EIB/KNX Projecting and Commissioning**

Price: 1.713,60 €  
Appointments in Lüdenscheid:  
 03.05.–07.05.10  
 08.11.–12.11.10

**DIALux user training**

Prices:  
Lüdenscheid: 1.630,30 €  
London/Madrid/Paris/Milan/Istanbul:  
1.470,- €

Appointments in Lüdenscheid:

01.09.–03.09.10

Appointments in London:

06.10.–08.10.10

Appointments in Madrid:

05.05.–07.05.10

03.11.–05.11.10

Appointments in Paris:

17.11.–19.11.10

Appointments in Milan:

25.10.–27.10.10

Appointments in Istanbul:

21.10.–23.10.10

You will receive further information about other seminars and the venues for the seminars in London, Milan, Paris, Madrid or Istanbul after enrolment or you can request this information direct from DIAL in Lüdenscheid.

Please tick the seminar of your choice and fax the form to DIAL.

**Terms of business**

After enrolment you will always receive written confirmation of enrolment. The enrolment fee includes value added tax and covers the cost of training material, lunch and beverages. If cancellation is made up to 14 days before the first day of the seminar, a handling fee of 10% of the enrolment fee will be charged. If the participant fails to appear or does not complete the seminar or cancels at short notice (less than 13 days prior to the first day of the seminar, the total enrolment fee will be charged. Should it be necessary to postpone the date of a training course for reasons for which we cannot be held responsible (e.g. insufficient enrolments, illness of lecturers), we will inform the enrolled participants and refund the enrolment fee immediately. No further claims on the part of the participants will be accepted. We reserve the right in exceptional cases to exchange the lecturer and make changes in the training procedure and content. We will inform you immediately of any such changes.

Court of jurisdiction for both parties to the contract is Lüdenscheid.

Company:

Business sector:

Street/number:

Town:

Postal code:

Phone:

Fax:

Participant 1:

Participant 2:

Date:

Legally binding signature and company stamp:

I herewith make a confirmed booking for the seminar(s) as marked and with my signature agree to the terms and conditions.

Please send me without obligation the current seminar brochure.

I wish to order the current DIALux CD for 15,- € incl. 19% VAT.

Vegetarian?

yes  no

# DIALux

“Let there be light.”

- > **DIALux is a lighting design software** for calculation and visualization of indoor and outdoor lighting.
- > **DIALux is an all-inclusive free software** for importing from and exporting to all CAD programs and for photorealistic visualization with the integrated ray tracer.



> Get your free copy at  
[www.dialux.com](http://www.dialux.com)

**DIAL**  
light. building. software.

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Telefax +49 23 51 10 64·361



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I wish to order the current DIALux CD for 15,- € incl. 19% VAT.

Vegetarian?

yes  no



**Editor:**

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We would like to thank those who took part in our seminars for permission to show them in photographs in this brochure.

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