

LED lighting for

Sports

Professional & Recreational



AAA-LUX®

TRIPLE A LIGHTING

AUSTRALIA

SMART. FLEXIBLE. LED.



Football in Norway

Second tier + Training pitch
Class II

Features active dimming to
reduce carbon footprint and
energy consumption



AAA-LUX®
TRIPLE A LIGHTING

Mission

The beautiful village of Andenes, well within the Arctic Circle in the northern reaches of Norway, is a place where untamed nature shows its true beauty. Just off the coast, whales and orcas play under the tranquil Northern lights. Andenes symbolises the natural beauty we all want to protect. Fittingly, the local football club picked AAA-LUX to supply their LED pitch lighting.

We want to play our part in reducing the ecological footprint of modern society. Together we can make a real impact and that's why we've made our technology as accessible as possible. Making use of a clever design and keeping the installation process as simple as can be. We also strive to have existing masts reused and recommend using smart control systems with our high-output luminaires, using as few fixtures as possible.

Besides, high-quality light makes people happy, and neighbours love our measures against light pollution. On top of that, the general public is seeing more and more of us, because we specialise in professional sports, stadiums and TV broadcasts. You've probably seen us more often than you think.

This brochure will take you on a tour of our products, projects, and specialties, as well as giving tips and advice on purchasing and using LED lighting for sports facilities.

Together, we can make a sustainable impact.

Erik Swennen
Founder

*Making sustainable high-power illumination
accessible for all people*





Italian Serie A

UEFA Elite Level A

Eh 2,000lx, Ev 1,500lx
from 4 sides and Ecam
1,650lx (main camera) with
very high uniformity

The ultimate stadium experience

AAA-LUX has supplied its systems to clubs in major international competitions since 2010, ensuring that stadiums meet all the lighting requirements set by FIFA, UEFA, IAAF, Davis Cup, FIH, World Rugby and other international bodies. The crowd gets a clear picture of what is going on on the pitch and the cameras record it all in (HD)TV quality.

Get the most out of your stadium:

- Make sure your stadium meets the lighting requirements for TV broadcasts
- Increase visibility for players and crowd with maximum uniformity
- Boost entertainment value with dynamic show lighting
- Cut your energy consumption and lower your carbon footprint
- Low investment thanks to high light output per fixture

Sports are entertainment

With AAA-LUX fixtures, you can also use your field lighting system for entertainment purposes. Treat everyone in attendance to a wonderful show thanks to support for internationally used communication protocols such as DMX and DALI. With the wireless version, even smaller stadiums and recreational fields can serve up high-value entertainment.

Give everyone
in the stadium
an experience
to never
forget

Low stress load

With AAA-LUX, you typically need a low number of fixtures, which helps to keep the costs down. Besides, they put a very low stress load on stadium masts and the stadium roof, the importance of which should not be underestimated.

Swiss Tennis

Live TV broadcast

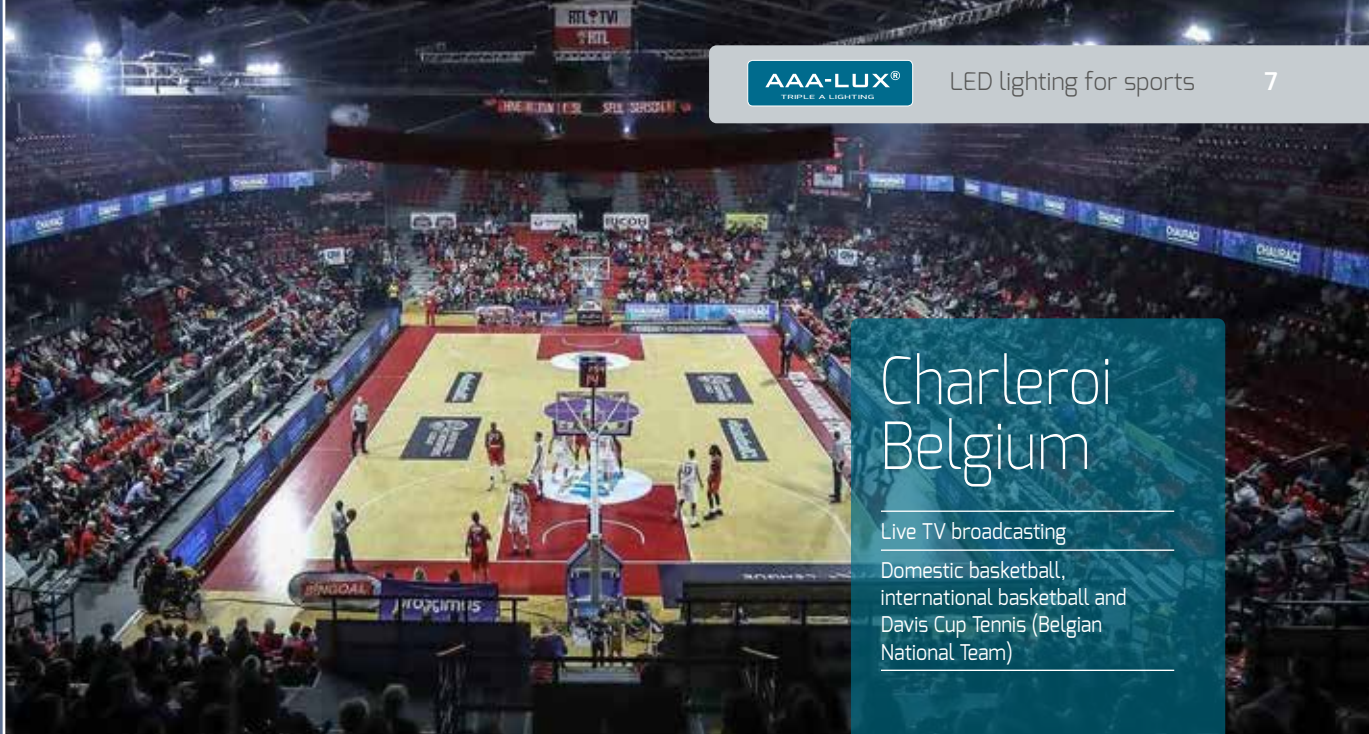
Arena located at the Roger
Federer Allee, at the Swiss
Tennis Headquarters and the
Tennis Academy



Prague Czech

Football & Athletics

Headquarters & Elite Sports
Facilities of the Czech Football
Association and Czech Athletics
Association



Charleroi Belgium

Live TV broadcasting

Domestic basketball,
international basketball and
Davis Cup Tennis (Belgian
National Team)



Danish Football

UEFA Level C

Eh 1,200lx, Ev 750lx from 4
sides. 4 x 35 m masts



France Top Rugby

Live TV Broadcasting

Eh 1,800lx, Ev 1,400lx from
4 sides

PROJECT COSTS



Tennis

The Netherlands

Second tier 300lx
Class II

Reused masts and cabling in
Velp's verdant forests

Masts and installation costs play a key role

How can you get the best overall price?







People often focus on getting their fixtures for the lowest possible price, which sometimes comes at the expense of what really matters: the best overall price.

Not all brands support the reuse of masts and cabling. Lower light output, greater weight or more windage mean you will need more fixtures and/or might even cause you to exceed mast limits. In that case, you'll need new masts and cabling, which can easily lead to a twofold increase in overall project costs.







AAA-LUX fixtures are full retrofits. The fixtures are compact and low-weight, so you can keep your old masts and cables, provided they're still mechanically sound. You'll never need more fixtures than you would with traditional lighting. In fact, AAA-LUX lighting systems often need fewer fixtures than any other traditional or LED-based solution, even with light pollution measures!

The RF communication, the need for extra infrastructure, wires and installation work, cutting costs; all these elements can have a massive influence on the overall project price.

Reusing an existing system with LOWER costs, thanks to:

	Higher light output	Fewer fixtures needed
	Low weight and windage	Reusing masts & cables
	No start-up (peak) voltage	More light from existing power supply
	RS (Reduced Spill) Technology	Fewer fixtures needed, even with anti pollution light shields
	RF controls	Easy to install, online monitoring
	Driver in top	No additional cabinets, cabling and installation work required

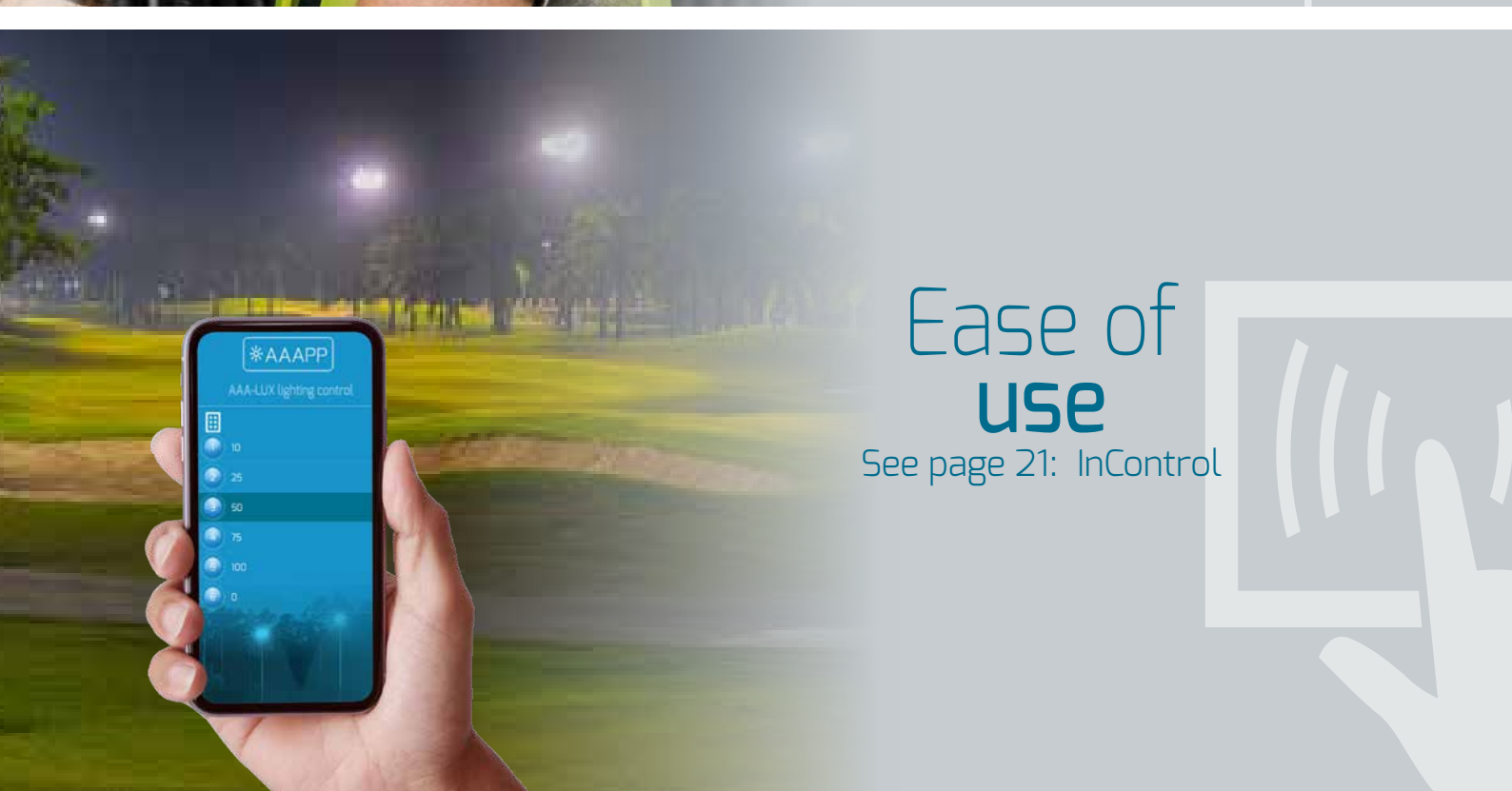
New system, LOWER COSTS thanks to:

	Higher light output	Fewer fixtures needed
	Low weight and windage	Requires slimmer masts and foundation
	No start-up (peak) voltage	Smaller fuse, thinner cables, smaller connection
	RS (Reduced Spill) Technology	Fewer fixtures needed, even with light pollution shields
	RF controls	Easy to install, online monitoring
	Driver in top	No other cabinets, cabling and installation work required



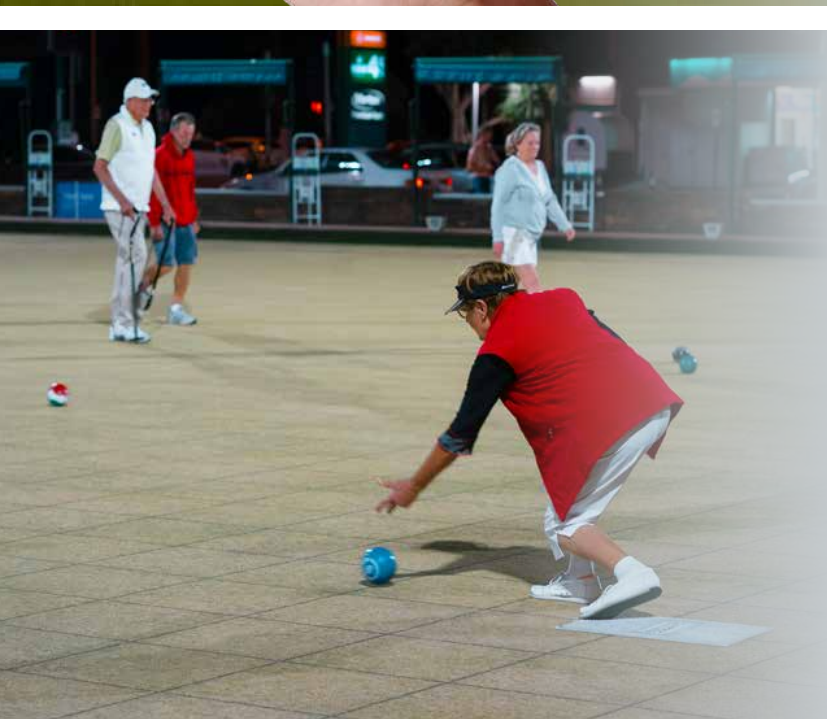
Ease of installation

See the story on the right >



Ease of use

See page 21: InControl



Ease of maintenance

See page 21: Dashboard



All-round convenience

Users are “at ease” with AAA-LUX

Tennis club

Patrick van Gool, a member of tennis club Ace, relates how the entire club has been shining brightly since making the switch to LED lights. “The players are happy, that’s for sure. The quality of the lighting system couldn’t be higher. The board is also happy, because they were able to reuse the existing masts, which meant they didn’t have to invest in new ones. This was a great surprise, because we thought that if we switched to a new LED supplier, they would also install new masts.”

“You can clearly tell that they took a solution-oriented approach. AAA-LUX even advised on challenges we might encounter in the future.

“We thought that if we switched to a new LED supplier, they’d also install new masts”

They told us that light pollution standards had been tightened up considerably and gave us some tips on preventing issues with the neighbours in the future. Now, we’re ready for whatever might come our way!”

Installer

Installer Frank Janssen loves working with LED lighting from AAA-LUX. “Let me start off by saying that the fixtures are very easy to install. The fixtures can easily be swapped individually, using exactly the same cable. Besides, properly aligning the lights with the pitch isn’t super sensitive, as well as being a lot quicker to do than with other suppliers.”

“AAA-LUX sets me apart from the competition”

“We can use the basic framework provided by the current system and reuse the masts. AAA-LUX generates more light with the same amount of power, which means you’ll need fewer fixtures. Simply put: AAA-LUX lets me achieve the same effect as other suppliers, but with lower total cost. And since Gen7 was launched, it’s been easier than ever to implement measures to combat light pollution retrospectively. Overall, AAA-LUX simply sets me apart from the competition.”

Field hockey Australia

Hawthorn Hockey Club,
Melbourne

Class I 500lx. Facilities located
in the beautiful "Patterson
Reserve"



Athletics Reading England

Palmer Stadium

Cycling track, athletics track and
grass field, with high uniformity





Dubai Golf

Emirates Golf Club (Faldo Course)

Recreational golf, European PGA Tour, Omega Dubai Desert Classic and Ladies Masters



Ski slope Austria

Saalbach Hinterglemm

150 fixtures along a 2km track, operated from the valley



Cricket Darwin Australia

Marrara Cricket Ground

128 fixtures, WS-series and WS-STAD-series, on 6 masts

Soccer Canberra Australia

Brindabella Blues Football Club,
Calwell District Playing Fields

24 WS-series fixtures achieving
200 lux to Semi-Pro standard



Tennis Brisbane Australia

University of Queensland

88 fixtures, lighting 21 courts





BMX Dirt Track Australia

Big Rivers BMX, Katherine NT
23 WS-series fixtures

Hockey + Tennis Australia

Whitefriars College,
Donvale, Victoria

12 WS-series fixtures

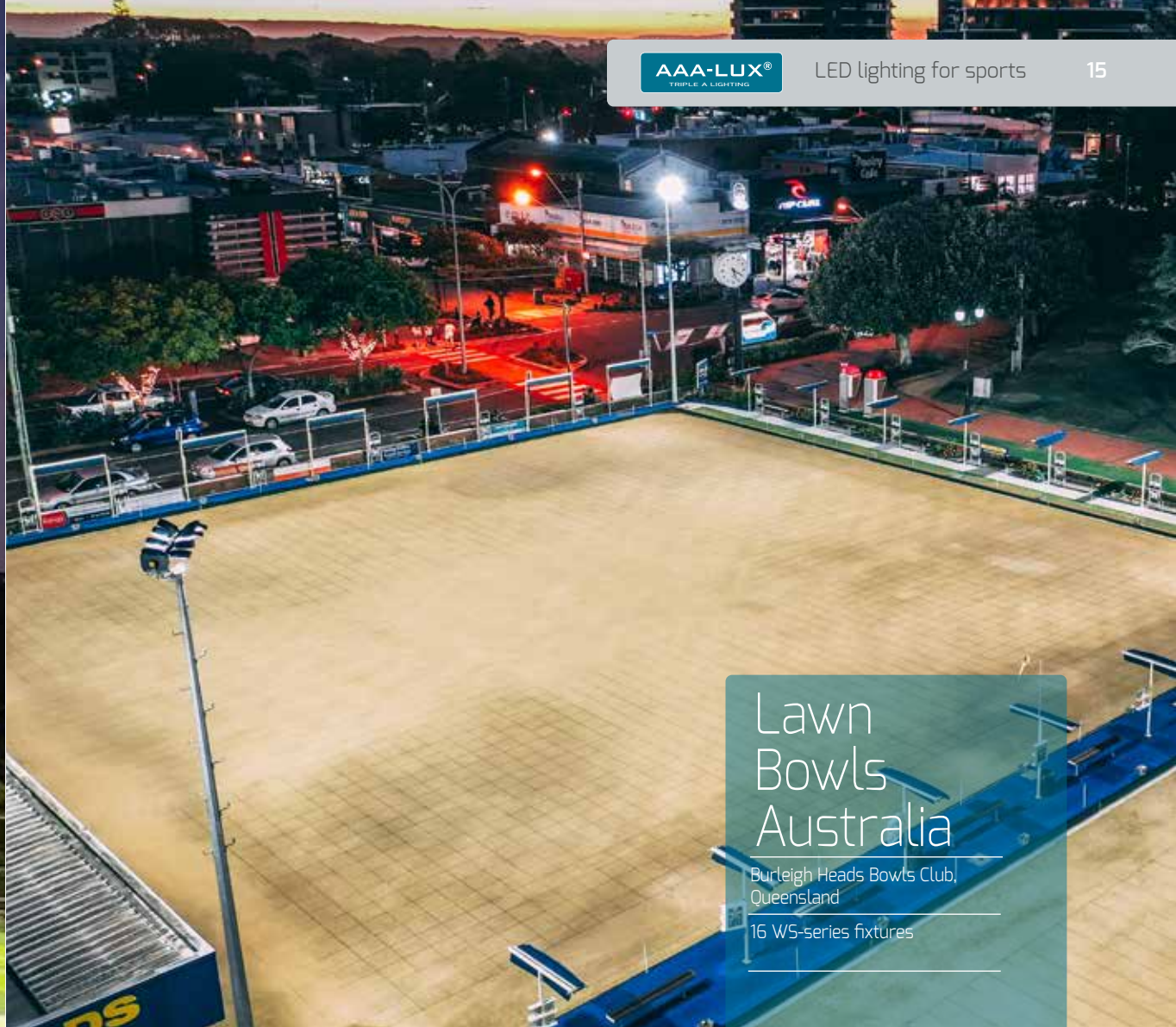


AFL Field Australia

Yackandandah Football Club,
Victoria

16 WS-series fixtures





Lawn Bowls Australia

Burleigh Heads Bowls Club,
Queensland

16 WS-series fixtures



Netball Courts Australia

North Wangaratta Netball Club,
Victoria

4 WS-series fixtures



and sustainable
✓
SMART. FLEXIBLE. LED.
Make huge progress with carbon reduction

Equipping a conventional lit sports field with high-power LED lighting is equivalent to LED-ifying between 10 and 20 km of street lighting.

Per field!

Updating sports fields is a tremendously effective way to achieve carbon objectives.

**Compensate 10-20 km
of street lights**

Carbon reduction

Compensation of a small city

Every LED fixture that leaves AAA-LUX's factories will, on average, offset the carbon footprint associated with the annual electricity consumption of a single-person household. Overall, this means AAA-LUX offsets the energy consumption of a small city every year.

Double carbon gains with dynamic controls

Light when and where it is needed, and with the right intensity!

In contrast to conventional lights, LED fixtures can be controlled separately, allowing for dynamic controls that can almost double energy and carbon gains.

What is quality?

What do you need to know when buying LED lighting for recreational sports fields?

What is light quality and how do you measure it?

- Basic knowledge of light levels, uniformity, glare, etc.
- Standards and guidelines
- Starting points (mast positions, dimensions, etc.)
- Warranty on light plans

What is product quality and how can you tell?

- Warranty conditions
- Service
- References
- Certificates

How do I keep the required investment down?

- What determines whether I can reuse my masts and cabling?
- Total project costs

How do you recoup the investment?

- Reusing infrastructure
- Ask for realistic examples
- Optimal use, see page 17

What are light pollution standards?

- CIE150 guideline and corresponding rules
- Where is the project located, are there houses nearby?
- Neighbours' rights and the role of the municipality

What do you need to know about subsidy & grants?

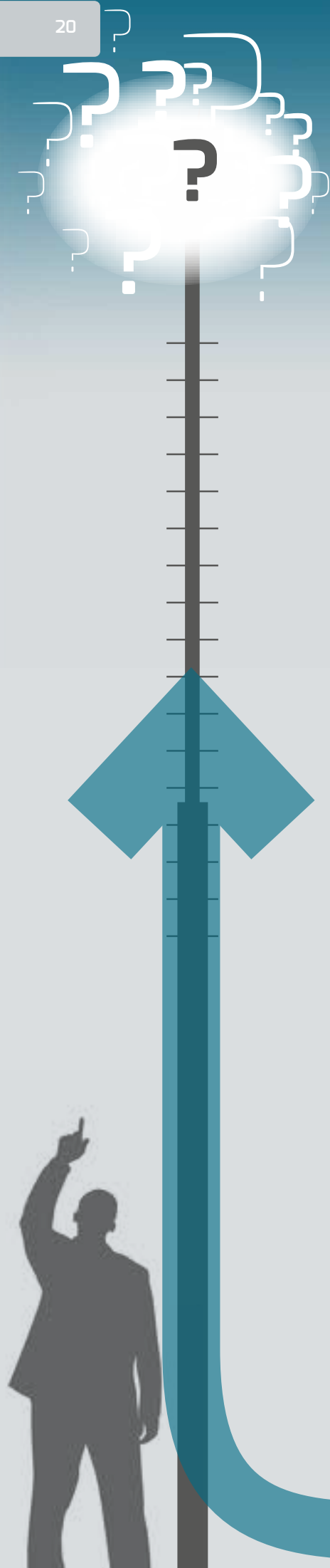
- Example of subsidy conditions
- Lumen per Watt, what is it and why is it so important?
- Why do I need dynamic controls to receive subsidies?

What is the use of a control system?

- What can dynamic controls bring you?
- Being connected, what's in it for you?

Purchase and installation

- Warranty agreements, what to look out for
- Installation instructions for the installer
- Measuring results in accordance with EN guidelines
- Tips for maximising energy savings and carbon reduction >>> OPTIMAL USE, see page 17



Optimal use

How can I maximise my LED lights' energy savings and lifespan?

Enough light

- Standards vs. usage
- The human eye vs. light quality
- Savings opportunities in a nutshell
- Lifespan

Extending lifespan with maintenance

- No-maintenance does not exist, low-maintenance does
- Maintenance contracts
- Dashboard, service page, monitoring

Get club members to experience the benefits

- Leaflet on "optimal usage" for club members.
- Templates and content for knowledge sharing via:
 - Club magazine
 - Club's social media pages

Savings through dynamic use

- Ask for examples
- Don't use more light than you need ... what do you need?
- How long will it realistically take to recoup your investment?

Control system

- Products vs. possibilities
- Dashboard / connected

Ensuring sustainable use of the light, together with club members



www.aaa-lux-lighting.com/purchase-support

Need some help?

Purchasing and using LED sports lighting requires a lot of knowledge and experience, and AAA-LUX is happy to share all this information for free. Check out our seminars and webinars or come to us for personal advice. Feel free to ask your questions by sending an e-mail to info@aaa-lux-lighting.com.



Reduced Spill

Marco van Basten

Second & Third-tier football and
Second-tier Tennis

Beautiful light on the pitch, while
the homes across the street stay
nice and dark

Maximum lighting quality, minimum pollution

Cherish the light, Respect the darkness

As urbanisation continues to ramp up, the number of homes near outdoor sports facilities is only set to increase, which means that limiting light pollution will also become increasingly important. This can be challenging, as we'll have to work to create better lighting for sports facilities whilst also reducing light pollution for neighbouring homes.

That's why AAA-LUX introduced RS Technology for maximum lighting quality and minimal obtrusive light.

- Optimal uniformity, within the designated lighting area;
- Reduce light pollution to an absolute minimum for the immediate surroundings, usually within E2 at 50 metres;
- Light shields only have a minor effect on the light output on the pitch;
- Additional options with InControl, page 21.



How the neighbours of the sports park experience RS technology

The top photo shows how traditional floodlights can cause significant light pollution.



The photo below showcases the impact of taking the correct anti-pollution measures.

AAA-LUX, products, tools and services

AAA-LUX is proud to offer a comprehensive solution. Top-tier lighting with the right tools and services for a tremendous experience from installation to use and maintenance.



More about
AAA Service
on page 22

InControl

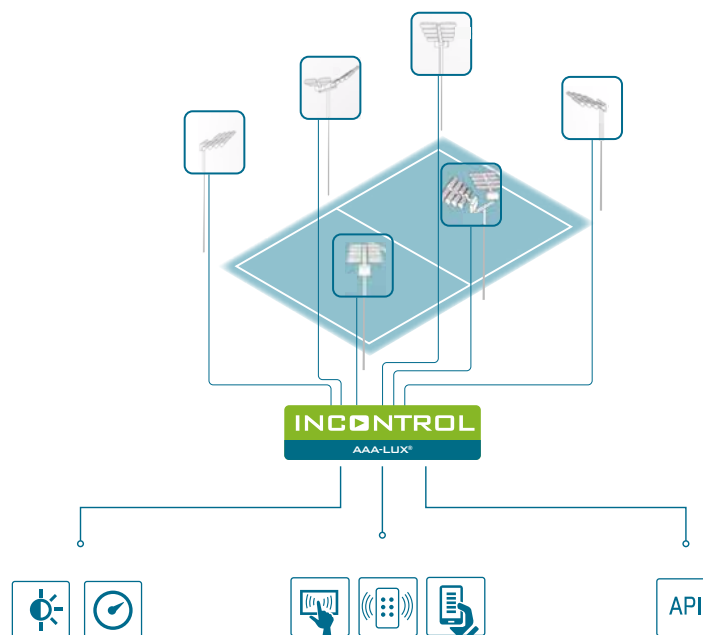
InControl is AAA-LUX's wireless control system. You can opt for local controls with physical buttons, an app, or a touchscreen, or for automatic controls with sensors, timed switches and/or an API software link.

Dashboard

You can control your lighting system with an online Dashboard, which also provides access to relevant information such as energy consumption and the technical status of your system. The dashboard can also run automatic diagnostics, allowing for accurate service and maintenance forecasting. That's what AAA-LUX means with being "connected".

Security

Online access works well when it can be done securely. That's why AAA-LUX has used a secure LEDxLINK protocol with an RF (Radio Frequency) connection since 2009. All users and installers are given their own access codes and user rights.



Wired controls: DMX and DALI

For stadiums, we can also supply DMX or DALI fixtures, which can be wired to a DMX or DALI controller to offer crowds exciting entertainment.





AAA-LUX Quality & Service program

AAA-LUX Quality & Service

Quality and service are both paramount when it comes to flawless systems. We go beyond product design to protect our products. The environment, the infrastructure and usage, all play a crucial role. AAA-Service is a collection of services that serve to protect your system, prevent problems and, should an issue arise, to offer a quick, effective solution. Offering convenience and valuable advice in the purchase phase is part of this.

AAA-Service consists of the following:

- ❏ Warranty packages
- ❏ Repair & Service
- ❏ Logistics
- ❏ Remote monitoring (diagnostics)
- ❏ Advice

Sustainability

Servicing a system can lead to increased traffic of people and parts. AAA-LUX aims to minimise this impact on the environment with a two-pronged approach. First, we rely on remote diagnostics powered by an IoT application. If repairs turn out to be necessary, we typically have a CRC (Certified Repair Centre) near you. Both solutions have allowed us to significantly reduce our carbon footprint.





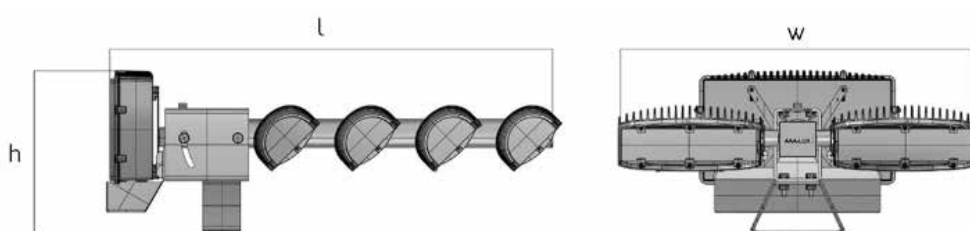
WS-series Gen7

Increased light performance & integrated RS technology

AAA-LUX' Generation 7 combines an increased light output with the ability to reduce obtrusive light in the surrounding area. The low amount of luminaires needed to meet lighting requirements, is truly a breakthrough in lighting technology.

Thanks to the integrated RS technology the luminaire is prepared for optimum reduction of obtrusive light, by mounting light shields (LS).

Mechanical Technical Information



LUMINAIRE TYPE	LUMINOUS FLUX (based on lm-79 measurements by DEKRA) [lm]			DIMENSIONS [mm]		
	ST	MP	HT	L1	W1	H1
WS 110	203900	220200	185500	900	700	320
WS 130	196700	212200	179400			
WS 160	205700	222200	187200			
WS 182	194000	209600	177200			
WS 183	194000	209600	177200			
WS 200	205800	222000	187200			
WS 250	205300	221700	186800			
WS 270	208500	225200	189800			
WS 290	205900	222400	187400			

FEATURES



Less luminaires needed
 Lowest total project cost
 Re-use infrastructure



Wireless dimming
 Remote monitoring
 Smart City












Ease of installation



Reduced Spill light
 CIE150 compliant

Specifications

All models				
		Min	Typ	Max
	Color Temperature (K)		5000 ¹	
	Color Rendering Index (CRI)	70	75	
	Expected lifetime (hours) LM-80, TM-21	105 000		
	Luminous efficacy (lm/W)	110		140
	Weight, including Driver (kg)	23		
	Frontal surface [CW = 1] @tilt 15° (m2)	0.22 ²		
	Ingress protection (IP)	66 ³		
	Product Color	RAL7015 / Pantone 446 C / Uncoated		
Standard (ST)				
		Min	Typ	Max
	Power Consumption @ 100% (W)		1550	1600
	Current (A)		3.9	4.3
	Ambient Operating Temperature (°C) ⁴	-30	30	
High temperature (HT)				
		Min	Typ	Max
	Power Consumption @ 100% (W)		1350	1425
	Current (A)		3.4	3.9
	Ambient Operating Temperature (°C) ⁴	-30	40	
Maximum power (MP)				
		Min	Typ	Max
	Power Consumption @ 100% (W)		1700	1750
	Current (A)		4.3	4.8
	Ambient Operating Temperature (°C) ⁴	-30	25	
Power Supply				
		Min	Typ	Max
	Voltage input (VAC)	370	400 ⁵ / 415 ⁶	460
	Power Factor @ 20% - 100%	0.9	0.97	
	Inrush Current		None	
	Over voltage (kV)			6
	Electrical Insulation Class		I	

¹ 4000K available on request

² TP26 for more details

³ Dali, DMX/RDM and Modbus version IP 65

⁴ Auto dimming may occur

⁵ 230VAC also available upon request

⁶ Australia/New Zealand

Compliance To Standards

Safety

IEC 60598-1:2014	Luminaires - Part 1: General requirements and tests
IEC 60598-2-5:2015	Luminaires - Part 2-5: Particular requirements - Floodlights
IEC 62471:2008	Photobiological safety of lamps and lamp systems
IEC 60529	Degrees of protection provided by enclosures (IP Code)
IEC 62031:2008	LED modules for general lighting - Safety specifications
IEC 61347	Lamp controlgear
EN 55015:2013 +A1:2015	(Generic emissions)
EC 61000-3-2:2014	(Generic emissions)
EN 61000-3-3:2013	(Harmonics)

EN 61547:2009	General lighting purposes - EMC immunity requirements
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Corrosion

DIN 50021 N55
DIN 50018 SWF 2.0
NFT 30.055 2 liter S02



DATASHEET CONTROL BOX 2.0

CONTROL BOX

Luminaire controls & information



TYPICAL APPLICATIONS

InControl is a full range of control equipment for all types of wireless controlled AAA-LUX LED luminaires of the WS, AL and JT-series.

InControl is a cost efficient and reliable method for controlling and monitoring AAA-LUX luminaires, while power savings and carbon footprint are being reduced. The InControl product range is largely divided into two groups: standalone applications and the more advanced control box applications.

Communication is based on the proprietary LEDxLINK protocol, developed by AAA-LUX.

The Control Box is the central device of all controllable applications, for indoor placement. It is supplied with an antenna box for outdoor placement to communicate with luminaires.

AAA-LUX offers LED lighting for high mast applications such as outdoor sport fields, indoor and outdoor stadiums and outdoor industrial applications such as ports, airports and other large areas.

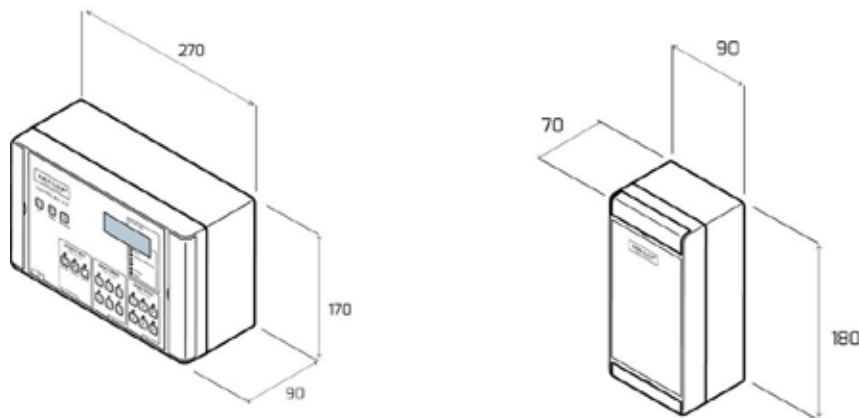
More information on www.AAA-LUX-lighting.com



TECHNICAL DATA



Control Box. Dimensions (in mm) 270 x 170 x 90, for reference only.

Antenna Box. Dimensions (in mm) 70 x 180 x 90, for reference only.



Dimensions in mm

Mechanical – electrical data

	Specification	Min	Typ	Max	Unit
	Power consumption			60	W
	Voltage input		230		VAC
	Frequency	50		60	Hz
	Operating temperature	0		+60	°C
	Weight		1.5		kg

Electrical data – inputs - outputs

	Specification	Min	Typ	Max	Unit
	Relay outputs voltage			24	VAC
	Relay outputs current			1	A
	Sensor Inputs		Potential free		
	Ethernet		RJ45		
	USB		Standard type		

For detailed external connections see paragraph “External connections side panel”

*Together, we can make a
sustainable impact*

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SMART. FLEXIBLE. LED.

1300 222 589 / 1300 AAA LUX
www.aaa-lux-lighting.com.au