XICATO®

New Technology and Portfolio

www.xicato.com

Light Quality for Life

X icato® believes that the ability to create well-designed and sustainable space starts with an understanding of how people see and respond to light. Once we understand the nature of the desired light, we apply innovation and technology to design the right quality of light and then package it into modules that enable effective and efficient luminaires. Intelligent modules bring further installation savings via integration of electronics, including on-board drivers and sensors/self-protect systems for lifetime surety, all while enabling perfect dimming.

Our Light

Xicato has designed three types of light. Our Standard Series provides accurate light and is our most efficient offering. Our Artist Series® provides perfect natural light just like halogen.

Our Vibrant Series® subtly heightens atmospheres and brightens whites. All have superior color consistency based on Xicato's Corrected Cold Phosphor Technology.®

Image courtesy of Gamma Illumination

Image courtesy of Senso Lighting

Image courtesy of Lumenpulse AlphaLED

STANDARD SERIES	VIBRANT SERIES®	ARTIST SERIES®
Accurate Color	Striking Color	Natural Color
Normal Color Rendering	CRI ≥ 80 GAI_{BB} ~111	Very High Color Rendering
GAI_{BB} ~97 CRI ≥ 80	CRI ≥ 95 GAI_{BB} ~120	CRI ≥ 95 GAI_{BB} ~109
Office & General Lighting	Retail & Display Lighting	Hospitality & Gallery Lighting
2700K – 4000K CCT	3000K CCT	2700K – 4000K CCT
100+ Lumens per Watt	100+ Lumens per Watt	80+ Lumens per Watt
Superior Color Consistency	Superior Color Consistency	Superior Color Consistency

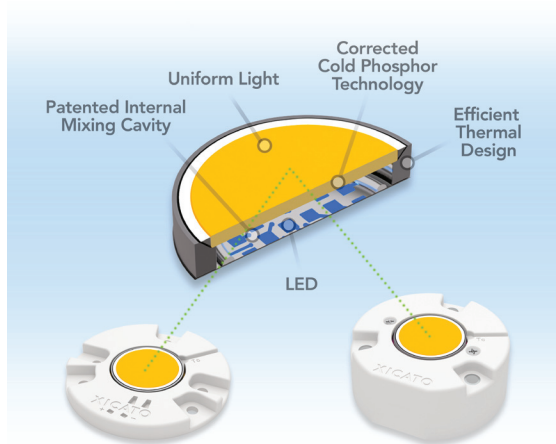*Image courtesy of High Technology Lighting*

Image courtesy of Electron

Corrected Cold Phosphor Technology®

Wavelength variation is a result of the LED manufacturing process and when in use, LEDs turn 40% or more of the input energy into heat. Both wavelength variation and heat are the enemies of providing sustained, high-quality light from LEDs. Xicato has addressed both of these potential issues by developing Corrected Cold Phosphor Technology.® This innovative technology allows Xicato to take a most unique approach.

First, we "tune" the module in the manufacturing process to achieve Xicato's exacting standards for initial color. Only Xicato commits that every module will be within a 1 x 2 MacAdam Ellipse around its target color point.

Second, we provide a thermal cooling path to ensure that the LEDs and the phosphor stay cool throughout the entire life of the module. Heat

degrades phosphor and results in poor uniformity and variable color shift. By keeping the phosphor cool, Xicato can ensure that color consistency is maintained over the life of the module.

Color Consistency

Xicato's modules have an initial color point consistency of 1 x 2 MacAdam Ellipses. The specification is based on lighting designer requirements and is the most stringent in the industry. It means the end to inconsistent color performance and ensures the visual appeal of your space will be maintained to deliver maximum value. Xicato focuses on color

consistency so that installations can stand the test of time. Corrected Cold Phosphor Technology® enables us to individually tune and measure each module before it's shipped, and keep the phosphor cool to minimize color degradation. Xicato is the first and only company to guarantee color consistency for five years.
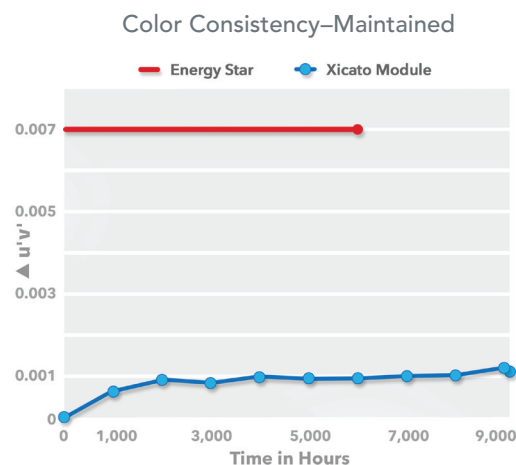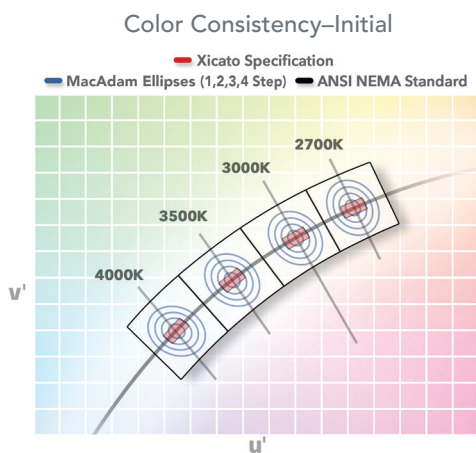
Color Consistency–Initial

Color Consistency–Maintained

Image courtesy of High Technology Lighting

Color Rendering

Xicato carefully controls LED and phosphor specifications to deliver modules with color rendering and efficacy combinations which are appropriate for the application. The CIE standard colors used for Ra (Rendering Average) appraisal are the pastels R1-R8. To gain a fuller picture of our modules' color rendering performance, we also detail the CIE's supplementary reference colors (R9-R15), which includes chlorophyll, skin tones and critically the deep red (R9) that, for example, affects the appearance of wooden surfaces.

	Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	GAI_{BB}
Xicato Standard Series	81	80	85	89	81	78	80	86	66	16	64	79	58	81	93	75	97
Xicato Artist Series®	98	98	99	98	98	98	97	98	98	98	99	98	88	98	98	98	109
Xicato Vibrant Series® V80	81	81	86	89	81	80	80	85	68	16	66	80	62	82	93	77	111
Xicato Vibrant Series® V95	95	99	98	97	96	98	96	95	94	90	97	95	97	98	98	98	120
Typical IR coated Halogen Dichroic	98	98	99	99	99	98	98	99	97	92	97	98	97	98	99	97	100
Typical Compact Metal Halide	82	90	94	69	82	81	81	87	71	27	59	62	55	93	78	88	113
Typical Compact Fluorescent	87	91	93	86	91	89	90	88	70	17	76	91	81	93	92	81	87

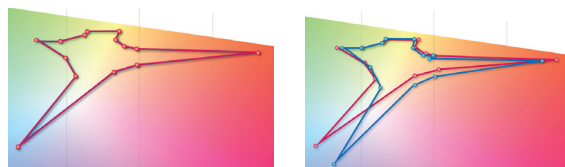*Independent measurements by University College, London.*

Artist Series®

Our color scientists have engineered the Artist Series® to have a typical CRI of Ra 98, compared to one of 80+ with the Standard Series. The Artist Series® has also been optimized to get excellent results for the more saturated and skin color samples of the CRI reference set. For the deep red R9 reference sample, a value of over 90 has been achieved for the 2700K and 3000K Artist Series,® and the same R9 is over 85 for the 4000K Artist Series.® These numbers not only outperform other LED solutions, but also traditional lamp types like compact fluorescent and compact metal halide.

Vibrant Series®

For most of us, the experience of viewing objects under halogen light is the primary reference, and from a color rendering perspective halogen light gets near perfect marks on a CRI scale of 100. It feels natural to us. Sometimes, however, this is not the desired effect in a lit space where more vivid and exciting visual experiences are sought. By increasing the gamut area of our Vibrant Series® modules, objects appear richer and with more depth. Light from the Vibrant Series® is spectrally engineered to make colors appear richer and more vivid and to bring out textures and depth of materials like never before. This enables us to see colors, hues and tones, particularly for whites, blues, pinks and purples that are real, but simply aren't visible under halogen light.

— Halogen & Artist Series®   — Vibrant Series®

Shoes lit under Artist Series® compared to Vibrant Series® and their associated Gamut Area Plots.

Image courtesy of Electron

New Module Range

All of our modules utilize Corrected Cold Phosphor Technology,® resulting in industry-best sustained color and light output, as well as offer our unique 5 year color and lumen maintenance warranty.

CORRELATED COLOR TEMPERATURES: 2700K to 4000K
LIGHT TYPES: Standard Series, Artist Series,® Vibrant Series®

EFFICACIES: typically over 100+ lm/W at operating conditions, except for the high CRI versions which are 80+ lm/W

XTM

XTM is our basic module range for accent and general lighting applications. Low cost, a Zhaga compatible form factor and flux packages up to 5000 lumen are characteristic of this range. It is available in versions with 19mm and 9mm light emitting surfaces – the latter for narrow beams from discrete sized reflectors.

XIM

Using the same core light source as our XTM, the XIM combines controls, communications, sensors and software. Bringing critical electronics together IN THE LED MODULE offers many advantages, including affordable, flicker-free dimming, increased lifetime surety via electrical and thermal feedback, installation savings via internal DC drivers and a contribution towards accurate building services evaluation via retrievable module performance and operational data. XIM will also start the industry on a journey to smart buildings, aware of their environment and reacting to it, ensuring maximum human comfort at minimum energy consumption.

- 1-10V and DALI options
- Superior deep dimming, down to 0.1% in DALI and 1% in 1-10V
- Integrated DC driver electronics
- Electrical and temperature protection
- Data retrieval possibilities, instantaneous and cumulative (hours of usage, percentage output, energy consumption, case temperature, on/off cycles, protection modes)
- 19mm and 9mm light emitting surfaces;
- Future-proof platform for expanding capabilities

Warranty

Xicato offers the lighting industry's only five year color consistency and lumen maintenance warranty. Due to our Corrected Cold Phosphor Technology, for five years we guarantee that color consistency between products in a single contiguous visual space viewable from any location within that space that differs less than three points in u'v'. Additionally, for five years we guarantee that there will be zero failures and lumen depreciation no more than 30%.

Since 2008, Xicato has continually recorded outstanding testing, analysis and field results that confirm our expectations of Xicato modules. There's no fine print and no extra cost, just the confidence that now you can see your space in the best possible light for the life of the module.

Image courtesy of LSI

Module Specifications

XIM

Nominal Flux	Color Temperature (K)				Gamut Index (GAI$_{BB}$)	CRI (Ra)	Required Input Parameters		Module Power Consumption (W)			Lumen Output (Typical)	Efficacy (Typical)	Life (Hrs.)
							Constant Voltage	Minimum Current						
	2700	3000	3500	4000			V	mA	Min	Typ	Max	lm	lm/W	
9mm LES	Standard Series ●		Vibrant Series® V80 ●											
700 lm	●	●●	●	●	97 ● 111 ●	83	48±5%	235	—	9.0	9.7	700	78	L80/C3 50K
1300 lm	●	●●	●	●	97 ● 111 ●	83	48±5%	455	—	17.3	18.7	1300	75	L80/C3 50K
2000 lm	●	●●	●	●	97 ● 111 ●	83	48±5%	862	—	32.9	35.4	2000	61	L80/C3 50K
9mm LES	Artist Series® ●		Vibrant Series® V95 ●											
700 lm	●	●●	●	●	109 ● 120 ●	98	48±5%	291	—	11.1	11.9	700	63	L80/C3 50K
1300 lm	●	●●	●	●	109 ● 120 ●	98	48±5%	705	—	26.9	28.9	1300	48	L80/C3 50K
19mm LES	Standard Series ●		Vibrant Series® V80 ●											
1300 lm	●	●●	●	●	97 ● 111 ●	83	48±5%	360	—	13.2	14.8	1300	98	L80/C3 50K
2000 lm	●	●●	●	●	97 ● 111 ●	83	48±5%	580	—	21.4	23.8	2000	93	L80/C3 50K
3000 lm	●	●●	●	●	97 ● 111 ●	83	48±5%	863	—	31.8	35.4	3000	94	L80/C3 50K
19mm LES	Artist Series® ●		Vibrant Series® V95 ●											
1300 lm	●	●●	●	●	109 ● 120 ●	98	48±5%	478	—	17.6	19.6	1300	74	L80/C3 50K
2000 lm	●	●●	●	●	109 ● 120 ●	98	48±5%	777	—	28.6	31.8	2000	70	L80/C3 50K

Image courtesy of Optelma UK

Image courtesy of Lucifer Lighting

XTM

Nominal Flux	Color Temperature (K)				Gamut Area Index (GAI_BB)	CRI (Ra)	Drive Current (mA)	Lumen Output at 70°C (lm)	Power Consumption (W)	Efficacy (Lm/W)	Life (Hrs.)
	2700	3000	3500	4000							
9mm LES Standard Series ● Vibrant Series® V80 ●											
700 lm	●	●●	●	●	97 ● 111 ●	83	700	700	7.8	90	L80/C3 50K
1300 lm	●	●●	●	●	97 ● 111 ●	83	700	1300	15.6	83	L80/C3 50K
2000 lm	●	●●	●	●	97 ● 111 ●	83	1050	2000	30.2	66	L80/C3 50K
9mm LES Artist Series® ● Vibrant Series® V95 ●											
700 lm	●	●●	●	●	109 ● 120 ●	98	700	700	9.7	72	L80/C3 50K
1300 lm	●	●●	●	●	109 ● 120 ●	98	1050	1300	24.3	54	L80/C3 50K
2000 lm	●	●●	●	●	109 ● 120 ●	98	1400	2000	42.1	47	L80/C3 50K
19mm LES Standard Series ● Vibrant Series® V80 ●											
1300 lm	●	●●	●	●	97 ● 111 ●	83	700	1300	11.7	111	L80/C3 50K
2000 lm	●	●●	●	●	97 ● 111 ●	83	700	2000	19.5	102	L80/C3 50K
3000 lm	●	●●	●	●	97 ● 111 ●	83	1050	3000	29.3	102	L80/C3 50K
4000 lm	●	●●	●	●	97 ● 111 ●	83	1400	4000	39.1	102	L80/C3 50K
5000 lm	●	●●	●	●	97 ● 111 ●	83	1400	5000	46.8	107	L80/C3 50K
19mm LES Artist Series® ● Vibrant Series® V95 ●											
1300 lm	●	●●	●	●	109 ● 120 ●	98	700	1300	15.6	83	L80/C3 50K
2000 lm	●	●●	●	●	109 ● 120 ●	98	1050	2000	26.4	76	L80/C3 50K
3000 lm	●	●●	●	●	109 ● 120 ●	98	1050	3000	34.1	88	L80/C3 50K

Image courtesy of Mike Stoane Lighting

Our Partners

Company	Country
3S Lighting	Australia
Efficient Lighting Systems (ELS)	Australia
Intralux	Australia
Xenian	Australia
OZ Lighting	Austria
XAL	Austria
Zumtobel	Austria
100% Light	Belgium
Brick in the Wall	Belgium
Dark	Belgium
Deltalight	Belgium
Etnobel	Belgium
Exterus Ligthology	Belgium
Kreon	Belgium
LEDLab	Belgium
Luxendi - Distributor	Belgium
Orbit	Belgium
PSM lighting	Belgium
Royal Botania	Belgium
TAL	Belgium
Tamawa	Belgium
Tekna	Belgium
Waco	Belgium
Lumini	Brazil
3G Lighting	Canada
AXIS	Canada
Dasal Architectural Lighting	Canada
GVA Lighting	Canada
MP Lighting	Canada
Senso Lighting	Canada
Lumenpulse	Canada / US
Sistemalux	Canada / US
CDN	China / Hong Kong
Diamond Lighting	China / Hong Kong
Forma Lighting (HK) Ltd.	China / Hong Kong
NSL	China / Hong Kong
Ominus Lighting	China / Hong Kong
Ricardo	China / Hong Kong
RIO	China / Hong Kong
SAT	China / Hong Kong
Vellnice	China / Hong Kong
WAC	China / Hong Kong
Widegerm	China / Hong Kong
Zodiac Lighting	China / Hong Kong
Unic-Light ApS	Denmark
Cubispot	France
Eclatec	France
IPSO	France

Company	Country
Luxendi - Distributor	France
Secante	France
Soka	France
Sonimétal	France
Sunlight	France
Ansorg	Germany
Elpro	Germany
Getron	Germany
Hess Lighting	Germany
Holders Components - Distributor	Germany
Lightnet	Germany
Objektleuchten Berlin	Germany
Occhio	Germany
Ruco Licht	Germany
Selux	Germany
stageled	Germany
Steng Licht	Germany
Stratas	Germany
Wila Lichttechnik	Germany
Electron	Greece
Altec - Distributor	Italy
Arcluce	Italy
Cantalupi	Italy
DGA	Italy
Entity - Distributor	Italy
Flos	Italy
Ghidini	Italy
iGuzzini	Italy
Brightlite - Distributor	Japan
EPK Corporation	Japan
Koizumi	Japan
Morikawa	Japan
Seiko SCM	Japan
Yamagiwa	Japan
Dongmyung Lighting Co., Ltd	Korea
Helem	Korea
Youngkong	Korea
DUA Lighting	Malaysia
Lucio International	Netherlands
Lumiparts	Netherlands
Luxendi - Distributor	Netherlands
MLS Lichtsystemen	Netherlands
Proliad	Netherlands
QClight	Netherlands
Quasar	Netherlands
TovLED	Netherlands
Van Doorn	Netherlands
Aquaform	Poland
Cleoni	Poland

Company	Country
LUG	Poland
Niviss	Poland
Organic Lighting	Poland
EEE	Portugal
OMS	Slovakia
Helem - Distributor	South Korea
Flos Architectural	Spain
Lamp	Spain
LED BCN	Spain
LedCis	Spain
Luxiona	Spain
Aspeqt Lighting	Sweden
Fagerhult	Sweden
Swedlite	Sweden
OPTELMA by OptaLED	Switzerland
Proluxlicht	Switzerland
Slight	Switzerland
Weber Lighting	Switzerland
Macron	Taiwan
MSC	Taiwan
Agustos Teknoloji - Distributor	Turkey
Heper Moonlight	Turkey
Kreon Aydinlatma	Turkey
Nasa Lighting	Turkey
Lightitude	UAE
Uniled Technologies	UAE
Compact Lighting	UK
Design 360	UK
Designed Architectural Lighting	UK
Factorylux	UK
Hampshire Lighting	UK
High Technology Lighting	UK
Holders Components - Distributor	UK
HTL	UK
Light Projects	UK
Luxonic	UK
Martech	UK
Mike Stoane Lighting	UK
Profile Lighting	UK
The Light Corporation	UK
Whitegoods	UK
Wila	UK
ACDC	UK
AlphaLED / Projection Lighting	UK
Lucent Lighting	UK
ac/dc	US
Architectural Lighting Works	US
Atlantic Lighting	US
B-K Lighting, Inc.	US

Company	Country
Con Tech Lighting	US
Cooper Lighting Iris	US
Cooper Lighting Lumiere	US
Cooper Lighting RSA	US
Creative Systems Lighting	US
Designplan	US
Dreamscape Lighting	US
Duraguard	US
Edison Price Lighting	US
Eleek Lighting	US
Flos	US
Focal Point	US
Generation Brands	US
Hevi Lite	US
HK Lighting	US
iGuzzini	US
Insight Lighting	US
Intense Lighting	US
InterLux	US
Kirlin	US
Kurt Versen	US
Ledra Brands	US
LF Illumination	US
Lighting Services Inc	US
Lindsley Lighting	US
Litelab	US
Lucent	US
Lucifer Lighting	US
Lukas	US
Lumenoptix	US
Lumetta	US
Lutron	US
Manning	US
Mark Architectural Lighting	US
Neidhardt Lighting	US
Nulux Inc.	US
Pathway Lighting	US
Pinnacle Lighting	US
PMC	US
Prescolite	US
Rambusch	US
Specialty Lighting Industries	US
Spectrum	US
Teka Illuminations	US
Times Square	US
v2 Lighting Group, Inc.	US
Vantage	US
WAC Lighting	US
Winona Lighting	US

About Xicato

Xicato designs and develops light sources and electronics that enable architects, designers and building managers to create beautiful, smart spaces people love to live and work in. With thousands of installations around the globe, Xicato continues to be a leading supplier of high quality lighting solutions. Xicato is defining the future of intelligent light sources by integrating electronics, software and connectivity.

Founded in 2007, Xicato's headquarters and manufacturing is based in Silicon Valley and the company has offices in China, Japan, Europe and the US. For further information visit **www.xicato.com**.

XICATO®

The Illuminating Engineering Institute of Japan
Supporting Member
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