THORN

Elevation

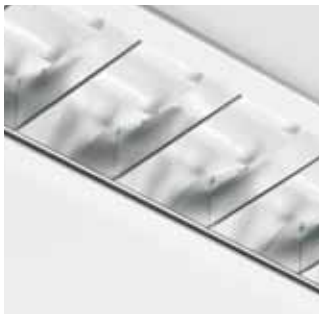
Restyled recessed fluorescent luminaire with greater performance, efficiency and practicality

Whether in an office, conference room or learning space, face to face communication between people is the prime method of sending and receiving information.

For this reason, Elevation provides a broad light distribution, allowing good quality facial illumination and modelling to ensure the message is received clearly.

Elevation is also one of the highest performing, most efficient recessed luminaires of it's kind on the market, exceeding the requirements of the very latest regulations. Introduced to replace Elevation Premier, Elevation provides updated styling for a more contemporary look and feel.

With a choice of two optics, dependent on the aesthetic requirement and photometric targets, the Elevation range offers real flexibility.

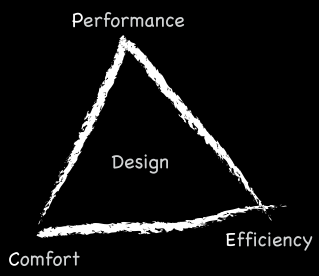


Choose the DSB louvre optic for outstanding performance and high efficiency

Choose the MPT solid optic for a modern look with minimal maintenance

Available with LED emergency. This reduces the number of emergency fittings required, due to the extended coverage compared to fluorescent versions. See page 7 for further information

Available with integral mini sensor. Providing unobtrusive dimming control to save installation time and energy. See page 7 for further information.



At Thorn we recognise our sustainability responsibilities, and with the **PEC** programme we have introduced a wide-ranging philosophy that underpins our approach to lighting design and implementation. The programme is based on the principle that performance, efficiency and comfort determine the visual effectiveness of lighting.

Performance: Providing the best visual effectiveness

Efficiency: Conserving energy and effort, reducing CO_2 emissions and waste, providing lighting that is practical and efficient to install, operate and maintain

Comfort: giving people satisfaction and stimulation

These key attributes are demonstrated throughout this brochure

Successful modern office developments give equal importance to financial, environmental and social concerns whilst new education buildings recognise the benefits in designing interesting and stimulating learning environments. Elevation answers these concerns, by offering high efficiency, good glare control and a balance of direct and indirect light.

Performance
In modern offices and classrooms many different tasks may be performed, from traditional paper based tasks, to tasks involving computers, whiteboards, pinboards, etc. These require good vertical and horizontal illuminance as well as low disability glare in display screens.

With luminance levels below 1,500cd/m^2 (DSB louvre optic), Elevation helps minimise disability glare in most screen types, and aids user performance.

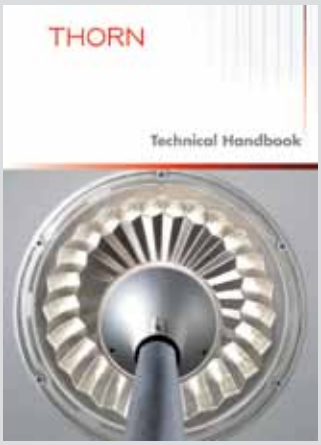
Efficiency
The latest environmental legislation means that lighting schemes must reduce energy consumption and minimise the carbon footprint. The more efficient your luminaires, the less power you will use and the easier it will be to meet the latest regulations, whilst saving money at the same time.

The Elevation lumen package ensures you will be compliant for years to come. It has a light output of up to 82% and efficacy of up to 59 luminaire lumens per circuit watt (Llm/w), (in excess of forthcoming guidelines of >55 luminaire Llm/w).

Comfort
Office workers and students in formal classrooms or lecture halls tend to have a sedentary work routine, looking in the same direction for long periods of time. Poor lighting can lead to headaches and eye-strain, and if people need to sit at an awkward angle to reduce glare, muscle pain can result.

To help reduce discomfort from the lighting, a balance of uplight and downlight can be used that allows good vertical illuminance for a more stimulating environment and good horizontal illuminance to light the task area most effectively.

Elevation gives a good distribution of light within a space, including directing 4% of the light output onto the ceiling, minimising the cave effect and contributing towards an LG7 compliant scheme



Further information can be found within the Thorn Technical Handbook

Why choose Elevation?

Exceptional value

Elevation is one of the most efficient luminaires of its kind on the market. With integral sensors for presence /absence and day-light detection, high luminaire lumen packages and long term cost savings through energy reduction, Elevation offers exceptional value for money.

Exceeding regulatory requirements

At 57 (MPT) and 59 (DSB) luminaire lumens per circuit watt (Llm/w), Elevation is one of the most efficient luminaires of its kind on the market, easily exceeding the 2010 building regulatory requirements (for more information see table below).

New regulations

The revision to Building Regulations (statutory documents for the construction of buildings), has been recently updated and comes into force in October 2010. Part L2: will set significantly higher efficiency targets for lighting, raising the luminaire efficacy target from 45 to 55 Llm/w for new offices and classrooms. Elevation surpasses this minimum standard, achieving between 57 and 59 Llm/w.

To calculate the efficacy, use the formula below:

Total Lamp lumens x LOR / Total Circuit Watts = Llm/w

Summary of Elevation Efficiency Ratings:	Gear	Circuit Watts/ Luminaire	Lamp Lumens/ Luminaire	LOR	Total Luminaire Lumens/Circuit Watt
2x24 T DSB	HF	48.5	3,500	0.82	59.2
2x24 T5 MPT AC	HF	48.5	3,500	0.80	57.7
1x55 TC-L DSB	HF	61	4,800	0.75	59.0
1x55 TC-L MPT AC	HF	61	4,800	0.74	58.2

DSB - Satinbrite double parabolic louvre, MPT - Micro Prism Technology

Converting more power into light

The table below illustrates the efficiency of Elevation.

Elevation converts more power into light, and therefore requires fewer fittings to achieve the required average illuminance of 500 lux.

	Elevation 1x55W
Lumen Output	4850
LOR	0.73
Total circuit watts (W)	61
Total Luminaire Lumens/Circuit Watt	59
Burning hours/year (average for classrooms)	1800
Annual consumption kWh	109.8
Carbon emission output based on 0.43 kg/kWh	46
Cost of energy (pounds sterling)	0.09
Yearly cost of energy per fitting (pounds sterling)	9.88
Fittings required to achieve 500lux average illuminance	12
watts per m²	13
watts per m², per 100 lux	2.6

Based on typical classroom dimensions of 7.8m x 7.1m x 2.8m
All versions employ DSB louvre optics

Better results at work
Compared to a standard, modular recessed luminaire, Elevation provides a more stimulating environment to work in, with a good balance of upward and downward light (below). This adheres to LG7 guidelines and minimises the 'cave effect' often associated with modular recessed luminaires (right).

LED Emergency (E3TX)
Compared to standard fluorescent, LED emergency benefits are as follows:

- Less maintenance with extremely good life
- Less battery material and parasitic power per fitting for improved sustainability
- Extended coverage (about 1.4m further than conventional fluorescent versions), resulting in fewer emergency luminaires required

Mimimum illuminance (lux)	Mounting height (m)	Maximum Spacing (m)			
		Centre to End		Between Centres	
		Trans	Axial	Trans	Axial
0.5	2.5	2.55	2.50	8.65	8.60
	3	2.60	2.60	9.15	9.10

LED emergency

Mini sensor

Indoor Lighting Controls
Did you know that lighting could account for half of all the energy used in office buildings?

Our lighting controls can help you to reduce lighting usage by up to 40%. That could enable you to save as much as 20% off your total electricity bill.

Elevation has a range of lighting control options, including High Frequency Dimmable (HFD) and High Frequency Dimmable with mini sensor DSI (HFL) that maximise your cost-saving potential.

			Daylight detection	Presence detection	Absence detection	Manual dimming	Infra-red control
SensaLite	**Rotary-DIM**	Offers precise manual control via a wall plate (HFD)	No	No	No	Yes	No
	SwitchLite	Dedicated PIR and/or photocell, to switch the luminaire on or off, in response to changes in ambient light (non dimming). Requires HF gear only.	Yes, switching only	Yes	Yes	No	No
	Sensa Digital	A first step to comfort and energy saving for controlling individual or a small group of luminaires with SensaDigital (HFD)	Yes, dimming or switching	Yes, dimming or switching	Yes, dimming or switching	Yes via override function	Yes
	Sensa Modular	Portfolio of lighting control products designed for single room applications. Can control up to 3 groups of dimmable luminaires (HFD and HFX)	Yes, dimming and switching	Yes, dimming and switching	Yes, dimming and switching	Yes	Yes
	SensaLink	A linked management system for larger projects requiring scene setting, daylight and presence linking and infra-red control using built-in sensors connected via a BUS (HFL)	Yes, dimming and switching	Yes, dimming and switching	Yes, dimming and switching	Yes	Yes

Photometric data/Schemes

Scheme 1:
Typical Open Plan Office (500 lux)

(based on a room measuring 15m x 15m x 2.8m)

Scheme 2:
Typical Classroom (500 lux)

(based on a room measuring 7.8m x 7.1m x 2.8m)

	Luminaire type	No. of luminaires	Spacing	Illuminance (lx)	Uniformity	wall/work plane	ceiling/ work plane	Installed load (W/m²)
Office (Scheme 1)	Elevation 1X55W DSB	36	2.4 x 2.4m	532	0.8	0.35	0.22	9.76
Classroom (Scheme 2)	Elevation 1X55W DSB + Optus	9+2	1.8 x 1.8m	507	0.7	0.45	0.23	11.27
Classroom (alt)	Elevation 1X55W DSB	6	3 x 2.4m	300	0.7	0.44	0.22	6.6

Typical Requirements:

Open Plan Office
Office lighting will cover a variety of tasks, from paper based to computer work and face to face meetings. If the layout of the office isn't know at the time of specifying the lighting. Good uniformity is also a requirement, providing a consistent lighting effect and offering flexibility should the office layout change. Furthermore, a balanced ambience creates a pleasant environment in which to work in so a luminaire which creates ceiling and wall washing is preferable. For this reason, the following quidelines are the best practice:

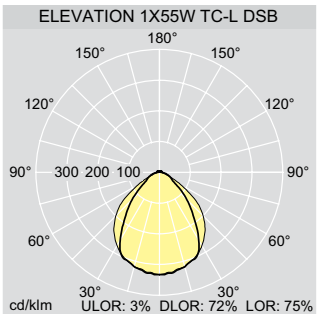
Average illuminance target: 500 lux
Minimum uniformity target: 0.7

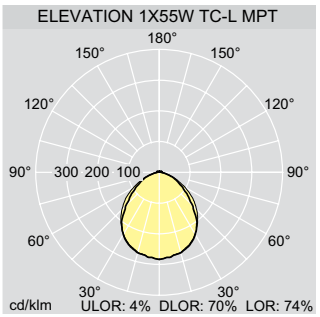
Elevation is able to achieve these targets using 36 luminaires in a typical sized open plan office, with spacing of 2.4m between each luminaire (2.4m between each row)

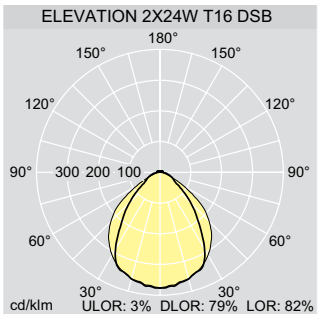
Classroom
Due to the regular use of teaching aids and the importance of facial modelling for teacher/student communication, both the horizontal and vertical illuminance are of paramount importance within the classroom. With 37% of the total working plane illumination on the vertical plane, Elevation achieves both effective illumination of whiteboards and good facial modelling. Furthermore, a classroom which is also required for adult learning will require an average illuminance of 500 lux, however, for this reason the following guidelines are the best practice:

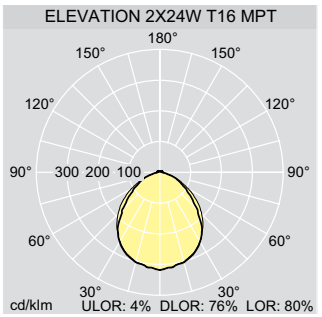
Average illuminance target: 500 lux
Minimum uniformity target: 0.7

Elevation is able to achieve these targets using 9 luminaires plus 2 whiteboard luminaires, in a typical sized classroom, with spacings of 2.4m between each luminaire. If only 300lux is required, however (no adult learning) Elevation can achieve this target with only 6 luminaires and uniformity 0.7. With 44% of the total working plane illumination on the vertical plane, Elevation achieves both effective illumination of whiteboards and good facial modelling.









(1x55 data achieved by using amalgam lamps)

Lighting Controls
e-Control is Thorns initiative to increase the use of dimming and lighting control in products and lighting solutions.

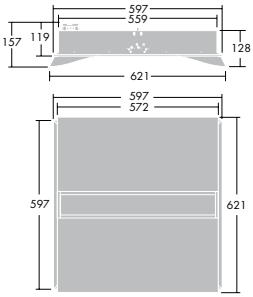
The continuing importance of efficient energy use (on both cost and environmental grounds), together with a need for more flexible application of lighting, has led to a reassessment of lighting techniques and given a fresh impetus to the drive for more efficient controls.

Lamps
55W TC-L (FSD) compact fluorescent. Cap: 2G11
With 840 Amalgam TC-L or 830 standard TC-L lamp options
24W T16 (FDH) linear fluorescent. Cap: G5
With 840 or 830 lamp options

Materials/Finish
Diffuser: perspex frost diffuser and PMMA axial prismatic
Wings: reeded opal acrylic (AC)
Louvre: Satinbrite double parabolic aluminium
Body and reflectors: white painted steel (RAL 9010 closest match)

Installation/Mounting
Suitable for lay-in (exposed tee 15 and 24mm) suspended ceilings
Suitable for pull up installation (concealed tee) suspended ceilings using wedge brackets (supplied), fitted externally via adjacent tile opening.
Wieland electrical connection via panel mounted GST male connector (plug).
Appropriate female sockets and T connectors to be ordered seperately (see accessories ordering guide).
Provision for gripple wire in the body. Wire to be ordered separately (see accessories ordering guide)

Standards
Designed and manufactured to comply with EN 60598
Emergency EN 605982.22
Class I Electrical
IP20



Ordering guide Supplied complete with lamp(s) (840 and 830)

Description	Ilcos Code	Socket	Standard Versions Weight (kg)	Standard Versions SAP Code	LED Emergency Versions Weight (kg)	LED Emergency Versions SAP Code
High Frequency Versions (HF)						
ELEVAT 1X55 TC-L HF DSB AC WL L840	FSD	2G11	6.3	96239063	6.7	96239069
ELEVAT 1X55 TC-L HF DSB AC WL L830	FSD	2G11	6.3	96239405	6.7	96239429
ELEVAT 2X24 T16 HF DSB AC WL L840	FDH	G5	6.4	96239064	6.8	96239070
ELEVAT 2X24 T16 HF DSB AC WL L830	FDH	G5	6.4	96239406	6.8	96239430
ELEVAT 1X55 TC-L HF MPT AC WL L840	FSD	2G11	6.5	96238999	6.9	96239017
ELEVAT 1X55 TC-L HF MPT AC WL L830	FSD	2G11	6.5	96239407	6.9	96239431
ELEVAT 2X24 T16 HF MPT AC WL L840	FDH	G5	6.6	96239000	7	96239018
ELEVAT 2X24 T16 HF MPT AC WL L830	FDH	G5	6.6	96239408	7	96239432
High Frequency Dimmable Versions (HFD)						
ELEVAT 1X55 TC-L HFD DSB AC WL L840	FSD	2G11	6.5	96239065	6.9	96239071
ELEVAT 1X55 TC-L HFD DSB AC WL L830	FSD	2G11	6.5	96239413	6.9	96239437
ELEVAT 2X24 T16 HFD DSB AC WL L840	FDH	G5	6.6	96239066	7	96239072
ELEVAT 2X24 T16 HFD DSB AC WL L830	FDH	G5	6.6	96239414	7	96239438
ELEVAT 1X55 TC-L HFD MPT AC WL L840	FSD	2G11	6.7	96239005	7.1	96239023
ELEVAT 1X55 TC-L HFD MPT AC WL L830	FSD	2G11	6.7	96239415	7.1	96239439
ELEVAT 2X24 T16 HFD MPT AC WL L840	FDH	G5	6.8	96239006	7.2	96239024
ELEVAT 2X24 T16 HFD MPT AC WL L830	FDH	G5	6.8	96239416	7.2	96239440
High Frequency Mini Sensor Versions (HFL)						
ELEVAT 1X55 TC-L HFL DSB AC WL L840	FSD	2G11	6.6	96239067		
ELEVAT 1X55 TC-L HFL DSB AC WL L830	FSD	2G11	6.6	96239421		
ELEVAT 2X24 T16 HFL DSB AC WL L840	FDH	G5	6.7	96239068		
ELEVAT 2X24 T16 HFL DSB AC WL L830	FDH	G5	6.7	96239422		
ELEVAT 1X55 TC-L HFL MPT AC WL L840	FSD	2G11	6.8	96239011		
ELEVAT 1X55 TC-L HFL MPT AC WL L830	FSD	2G11	6.8	96239423		
ELEVAT 2X24 T16 HFL MPT AC WL L840	FDH	G5	6.9	96239012		
ELEVAT 2X24 T16 HFL MPT AC WL L830	FDH	G5	6.9	96239424		

AC - Acrylic Wings Tp(b), WL4 - Wieland GST 4 pole connector, WL6 - Wieland GST 6 pole connector,
MPT - Micro Prism Technology, DSB - Satinbrite double parabolic louvre, HF - High Frequency,
HFD - High Frequency Dimmable DSI, HFL - High Frequency Dimmable with mini sensor DSI

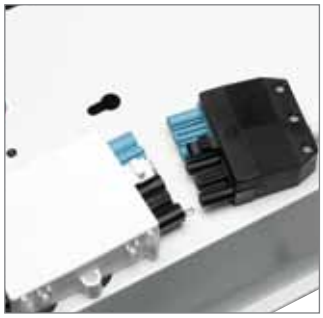
Accessories Ordering Guide

Description		SAP code
Connect S4	Wieland GST 4 pole socket for connecting HF variants	96200559
Connect S6 B	Wieland GST 6 pole socket for connecting HFD/HFL variants	96233052
Connect T4	Wieland 4 pole T connector for daisy chaining HF luminaires	96200562
Connect EM S3 R (only needed if using Voyager Explorer)	Wieland GST 3 pole socket for connecting E3TX luminaires	96503766
GRIPPLE SAFETY WIRE		96239327

Step by Step Installation Process (pull up installation)

1(a).

1(b).



2. (HFD version shown)

3. (HF version shown)

4(a).

4(b).

5.

Elevation is quick and intuitive to install with Wieland plug and play connection facility, simple mounting brackets and click and fix components.
Follow the simple step by step installation instructions below.

1. Attach mini wedge brackets (x4) from the outside of the body, by removing adjacent ceiling tile
2. Connect Wieland plug with socket located on the back of the luminaire
3. T connector for daisy chaining HF luminaires (if required)
4. Lamps are easily accessed via removable central optic
5. Remove louvre film

Also suitable for lay-in installation, into 15 and 24mm ceiling grid systems. Wings and central optic will need to be removed to allow clearance of the ceiling grid when installing using this method.

Ceiling compatibility

Elevation is compatible with most suspended ceiling systems. Please refer to the table below for a quick guide to compatibility:

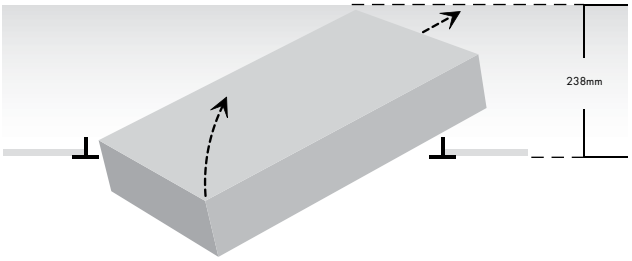
Ceiling Type	Elevation
Exposed Tee Grids	
15mm lay in	A
24mm lay in	A
15mm pull up	B
24mm pull up	B
Concealed Fix Grids	
Armstrong Orcal 1800	D
Armstrong Orcal 3000 Q	C
Armstrong Orcal 3000 S	B
SAS 120	D
SAS 150	C
SAS Alugrid 15/08	B
SAS Alugrid 15/16	B
SAS Alugrid 15/19	B
SAS Alugrid 25/16	B
Burgess Clip in	D
Burgess A Bar	B

Key
A Yes - No additional fixings required
B Yes - Mini-wedges required (supplied)
C Yes - But product will sit higher than tile
D Yes - but only if half spring T option available

Elevation provides the same ceiling compatibility as the IndiQuattro range. If using wedge brackets for a lay out installation, the suspended ceiling grid height must be between 12mm (minimum) and 68mm (maximum). The table (left) illustrates the suspended ceilings from the 3 main ceiling manufacturers that Elevation is compatible with.

It is always advisable to check ceiling and product dimensions and drawings to ensure compatibility, particularly for non-standard ceilings.

Required void depths for recessed fittings
For lay-in installation, the depth of the ceiling void needs to be as follows:



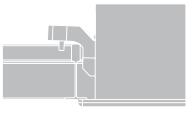
Fitting passed diagonally through ceiling aperture. Ceiling grid intact.

Fitting passed over one 'T' bar with one cross noggin removed.

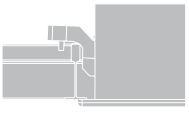
Fitting passed over ceiling grid after being inserted through area.

15mm lay-in

24mm lay-in



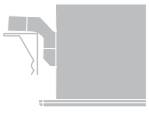
15mm pull-up



24mm pull-up

Orcal 3000/SAS 150

SAS Alugrid



Half spring T (SAS 120/Orcal 1800/ Burgess Clip in)

THORN

Lighting people and places

Thorn Lighting Main Offices

Thorn Academy of Light
Green Lane Industrial Estate, Spennymoor
County Durham DL16 6HL, UK
Tel: (44) 1388 420 042
E-mail: academy@thornlighting.com
Website: www.thornacademyoflight.com

Australia
Thorn Lighting Pty Limited
43 Newton Road, Wetherill Park
NSW 2164
Tel: (02) 8786 6000
Fax: (02) 9612 2700
E-mail: infoaustralia@thornlighting.com
Website: www.thornlighting.com.au

Austria
Thorn Licht GmbH
Donau-City-Straße 1,
1220 Wien, Austria
Tel: (43) 1 202 66 11
Fax: (43) 1 202 66 11 82712
E-mail: office.at@thornlighting.com
Website: www.thornlighting.at

China
Thorn Lighting (Guangzhou) Operations Ltd,
No.12 Lian Yun Road, Eastern Section,
GETDD, Guangzhou 510530, China
Tel: (86) 20 3228 2706
Fax: (86) 20 3228 1777
E-mail: sales.cn@thornlighting.com

Thorn Lighting (Tianjin) Co. Ltd
332 Hongqi Road, Tianjin 300190,
China
Tel: (86) 22 8369 2303
Fax: (86) 22 8369 2302
E-mail: info.tj@thornlighting.com

Czech Republic
Thorn Lighting CS spol. s.r.o.,
Na Březince 6/930, 150 00 Praha 5
Czech Republic
Tel: (420) 224 315 252
Fax: (420) 233 326 313
E-mail: thorn.cz@thornlighting.com
Website: www.thornlighting.cz

Denmark
Thorn Lighting A/S
Kanonbådsvej 12B, Holmen,
1437 København K, Denmark
Tel: (45) 76 96 36 00
Fax: (45) 76 96 36 01
E-mail: info.dk@thornlighting.com
Website: www.thornlighting.dk

France
Thorn Europhane SA
156 Boulevard Haussmann,
Cedex 08, Paris 75379, France
Tel: (33) 1 49 53 6262
Fax: (33) 1 49 53 6240
Website: www.thornlighting.fr

Hong Kong
Thorn Lighting (Hong Kong) Limited
Unit 4301, Level 43, Tower 1,
Metroplaza,223 Hing Fong Road,
Kwai Chung, N.T., Hong Kong
Tel: (852) 2578 4303
Fax: (852) 2887 0247
E-mail: info.hk@thornlighting.com

India
Thorn Lighting India Pvt. Ltd.
501, 5th Floor, Tanishka
Opp. Gundecha Industrial Estate
Akurli Road, Kandivali (E), Mumbai – 400 101, India
Tel: (91) 22-67839100
Fax: (91) 22-67839106
E-mail: international_sales@thornlighting.com
Website: www.thornlighting.com

International Sales
Thorn Lighting Limited
Silver Screens, Elstree Way, Borehamwood,
Hertfordshire, WD6 1FE, UK
Tel: (44) 20 8732 9800
Fax: (44) 20 8732 9819
E-mail: international_sales@thornlighting.com
Website: www.thornlighting.com

Ireland
Thorn Lighting (Ireland) Limited
Century House
Harolds Cross Road
Dublin 6W
Tel: (353) 1 4922 877
Fax: (353) 1 4922 724
E-mail: dublinsales@thornlighting.com
Website: www.thornlighting.co.uk

Italy
Thorn Europhane Spa
Via G Di Vittorio, 2, Cadriano di Granarolo,
Bologna 40057, Italy
Tel: (39) 051 763391
Fax: (39) 051 763088
E-mail: info@thornlighting.it
Website: www.thornlighting.it

New Zealand
Thorn Lighting (NZ) Ltd
399 Rosebank Road, Avondale, Auckland 1026
PO Box 71134, Rosebank, Auckland 1348
Tel: (64) 9 828 7155
Fax: (64) 9 828 7591
E-mail: info.NZ@thornlighting.com
Website: www.thornlighting.co.nz

Norway
Thorn Lighting AS
Strømsveien 344, 1081 Oslo,
Norway
Tel: (47) 22 82 07 00
Fax: (47) 22 82 07 01
E-mail: info.no@thornlighting.com
Website: www.thornlighting.no

Poland
Thorn Lighting Polska Sp.z.o.o.,
Ul. Gazowa 26A, Wrocław 50-513,
Poland
Tel: (48) 71 7833 740
Fax: (48) 71 3366 029
E-mail: thorn.pl@thornlighting.com
Website: www.thornlighting.pl

Russia
Thorn Lighting
Novoslobodskaya Str., 21, office 406
Business Center "Novoslobodskaya 21",
Moscow 127030, Russia
Tel: (7) 495 981 35 41
Fax: (7) 495 981 35 42
E-mail: office.moscow@thornlighting.com
Website: www.thornlighting.ru

Singapore
Thorn Lighting (Singapore) Pte Ltd
5 Kaki Bukit Crescent, 04-02 Koyotech
Building, 416238 Singapore
Tel: (65) 6844 5800
Fax: (65) 6745 7707
E-mail: info.sg@thornlighting.com

Sweden
Thorn Lighting AB
Industrigatan, Box 305, SE-261 23
Landskrona, Sweden
Tel: (46) 418 520 00
Fax: (46) 418 265 74
E-mail: info.se@thornlighting.com
Website: www.thornlighting.se

United Arab Emirates
Thorn Lighting Ltd Dubai
Al Shoala Building, Office 301,
Block E, Airport road, P.O. Box 1200,
Deira, Dubai, UAE
Tel: (971) 4 2940181
Fax: (971) 4 2948838
E-mail: marketing.mena@thornlighting.com
Website: www.thornlighting.com

United Kingdom
Thorn Lighting Limited
Silver Screens, Elstree Way, Borehamwood,
Hertfordshire, WD6 1FE, UK
Tel: (44) 20 8732 9800
Fax: (44) 20 8732 9801
E-mail: brochures.uk@thornlighting.com

Thorn Olympics Sports Lighting Team
Tel: 07785 251 438
E-mail: olympics.team@thornlighting.com
Website: www.thornlighting.co.uk

www.thornlighting.com

Publication No: 492 (IS) Publication Date: 11/10