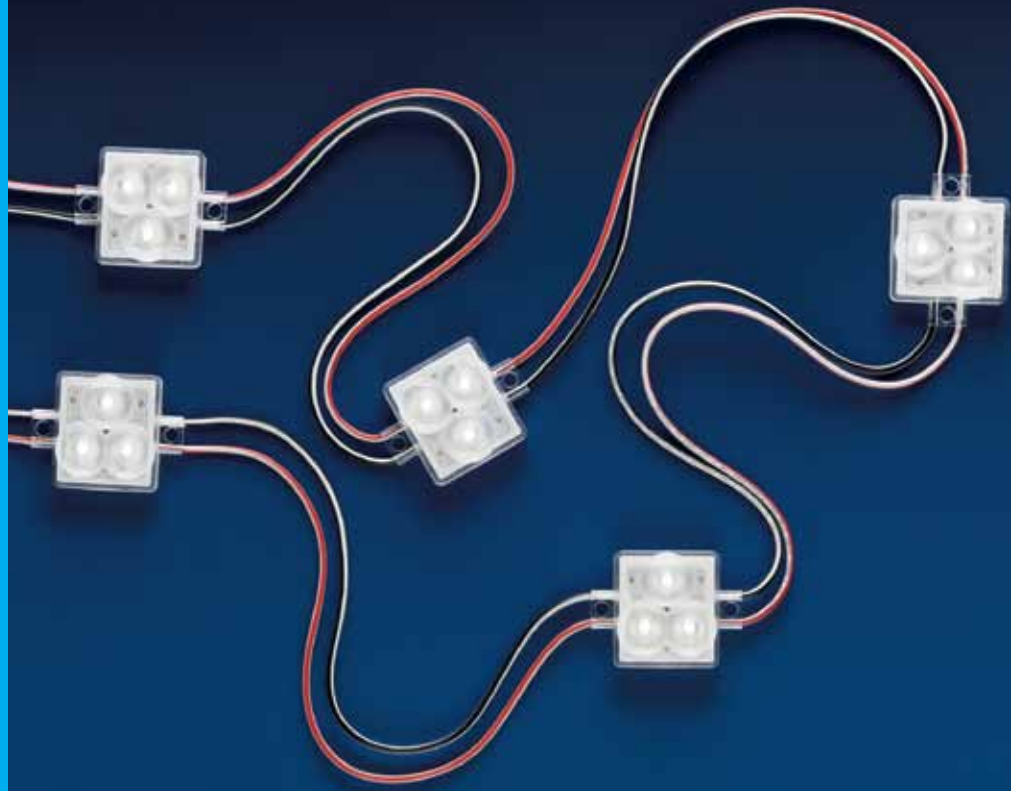


Expertise  
Product quality  
Close customer  
contact

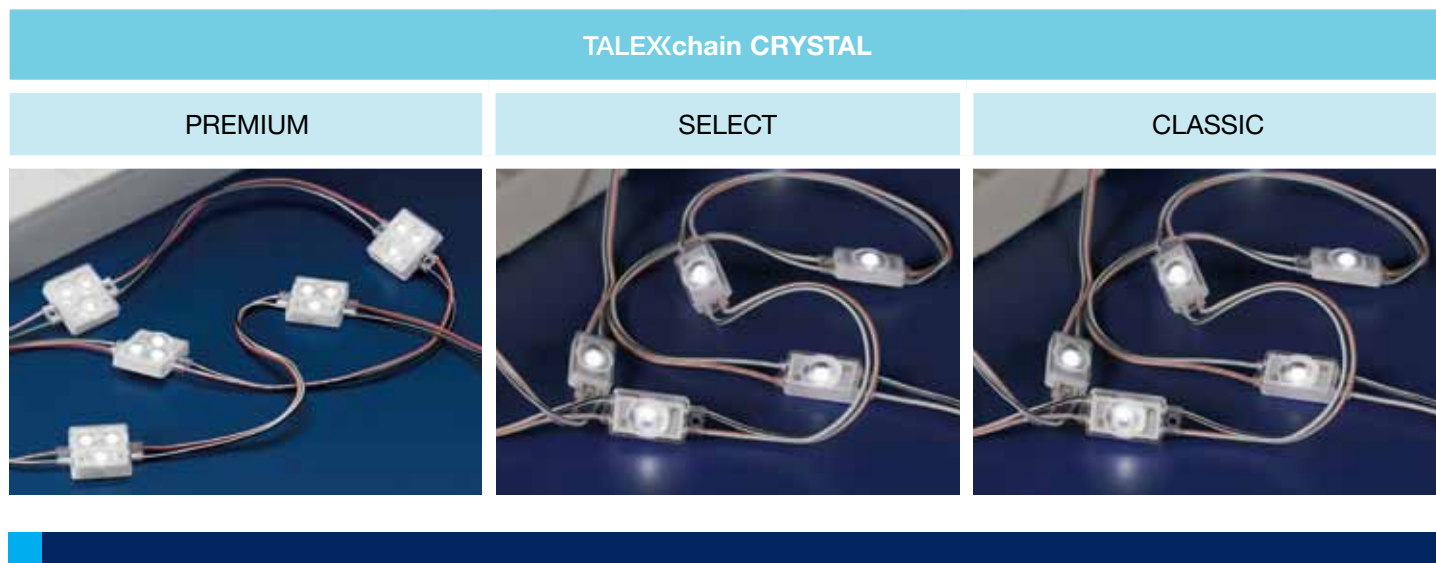


Product Leaflet

# TALEXchain CRYSTAL



# Brilliantly versatile: LED chains that leave nothing to be desired



## Small, robust and flexible

The TALEXchain CRYSTAL range with its extra small modules of the products TALEXchain CRYSTAL PREMIUM, SELECT and CLASSIC offer you maximum efficiency at all levels. The light from the CRYSTAL series will closely follow every curve and every shape. Lettering and logos with very shallow depths and narrow lines of light are also no problem at all. The unique lens can achieve perfectly uniform illumination with only a small number of modules. White areas are purer and more uniform than ever before. Areas of colour have a fresh intensity, and even dynamic colour changes are possible. These LED chains are also ideal for special effects such as coronas, halos and 3D. Robust IP68 construction makes the LED modules resistant to the weather and vibrations. Handling and installation are therefore really easy and a wide range of applications can be achieved with a high degree of individuality and economy.

## ▼ At a glance: TALEXchain CRYSTAL series

- Perfectly matched lens for uniform distribution of light
- Reliable protection against the weather (IP68)
- Narrow white light tolerance
- High energy efficiency
- Flexible thanks to user-definable module spacing
- Suitable IP67 converters available (15 W – 150 W)
- 5-year guarantee

## Typical applications

Lettering and symbols in any shape, colour and design, indoors and outdoors, poster boxes and sail installations.

## Product characteristics

Our TALEXchain CRYSTAL PREMIUM, SELECT, and CLASSIC have the following technical properties:

Technical property	TALEXchain CRYSTAL PREMIUM	TALEXchain CRYSTAL SELECT	TALEXchain CRYSTAL CLASSIC
Luminous flux per module	103lm*	45lm*	24lm*
Type of protection	IP68	IP68	IP68
Modules per chain	48	100	50
Current regulator per module	yes	yes	yes
Energy efficiency per module	82lm/W*	80lm/W*	43lm/W*
Beam characteristic	155°	155°	155°
Colour tolerance (White)	McAdam 5	McAdam 5	McAdam 7
Available colours	Crystal white, daylight white	Crystal white, daylight white, red, blue, green	Crystal white, Tageslichtweiß, Rot
Distance between modules***	selectable: 150/200 mm	selectable: 150/200 mm	selectable: 100/150 mm
Life time**	80.000 h	80.000 h	80.000 h

\*Typical values – colour: Daylight white

\*\*Lifespan within the maximum temperature thresholds; the luminous flux is 50 % of the value of a new product

\*\*\*Other distances available on request

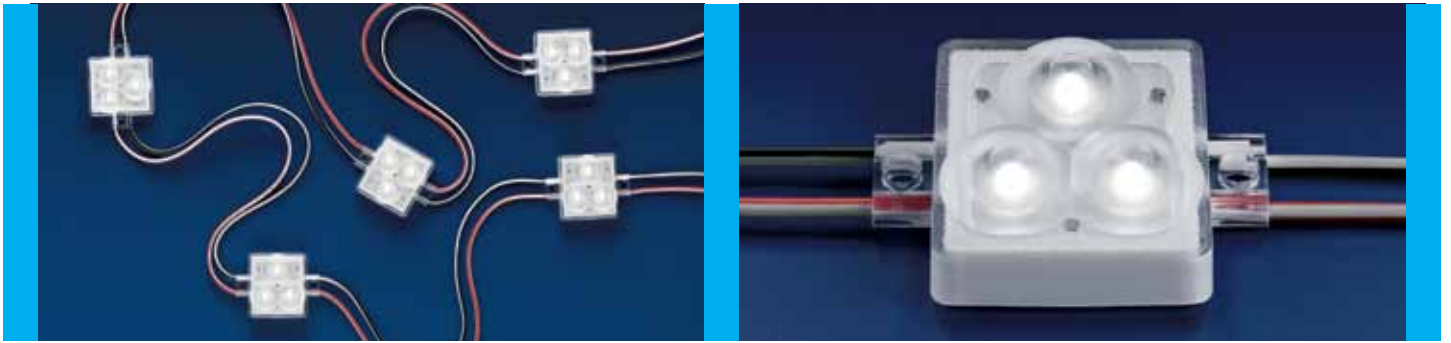
## Matching accessories

We offer you system solutions – in other words matching products from a single source. The right converters for our TALEXchain CRYSTAL series are also available:

Type	Art. no.	U <sub>out</sub>	P <sub>out</sub>	Type of protection
TALEXconverter LCU 015/12 D010 120-240V	24166316	12V	1–15VA	IP67
TALEXconverter LCU 035/12 D010 120-240V	24166318	12V	3,5–35VA	IP67
TALEXconverter LCU 060/12 D010 120-240V	24166322	12V	5–60VA	IP67
TALEXconverter LCU 100/12 D010 120-240V	24166326	12V	10–100VA	IP67
TALEXconverter LCU 150/12 D010 120-240V	24166331	12V	150VA	IP67



► Technical details on this product can be found on the data sheets (available to download from [led.tridonic.com](http://led.tridonic.com)).



TALEXchain CRYSTAL PREMIUM is highly versatile, making it suitable for any type of application.

IP68 – for protection against the weather

TALEXchain CRYSTAL are available in the following versions:

### TALEXchain CRYSTAL PREMIUM

Type (3 light points per module)	Art. no.	Colour	Colour temperature	Luminous efficacy	Total length	Number of modules	Module distance	Typ. luminous flux per module*
LED P560-PRE CW 12V 200 10 68 B000	22176627	Crystal white	7,500 K	80 lm/W	2.200 mm	10	200 mm	100 lm
LED P560-PRE CW 12V 200 48 68 B000	22176630	Crystal white	7,500 K	80 lm/W	9.800 mm	48	200 mm	100 lm
LED P560-PRE CW 12V 150 48 68 B000	22176629	Crystal white	7,500 K	80 lm/W	7.450 mm	48	150 mm	100 lm
LED P560-PRE DL 12V 200 10 68 B000	22176628	Daylight white	6,500 K	82 lm/W	2.200 mm	10	200 mm	103 lm
LED P560-PRE DL 12V 200 48 68 B000	22176657	Daylight white	6,500 K	82 lm/W	9.800 mm	48	200 mm	103 lm
LED P560-PRE DL 12V 150 48 68 B000	22176631	Daylight white	6,500 K	82 lm/W	7.450 mm	48	150 mm	103 lm

\*Tolerance range for optical and electrical data: ±15 %

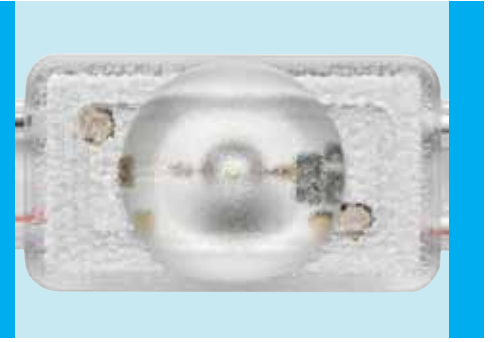




IP68 – a completely encapsulated LED module for protection against the weather



Small module sizes for maximum flexibility in handling and application



Uniform backlighting thanks to integrated diffused lens

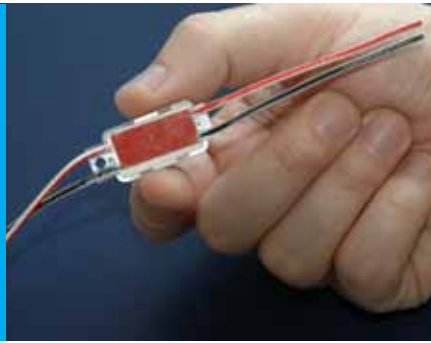
## TALEXchain CRYSTAL SELECT

Type (1 lightpoint per module)	Art. no.	Colour	Colour temperature	Wave length range	Total length	Number of Modules	Module distance	Typ. luminous flux per module*
LED P550-SEL CW 12V 200 10 68 B000	22176602	Crystal white	7,500K	–	2,200 mm	10	200 mm	45 lm
LED P550-SEL CW 12V 200 100 68 B000	22176600	Crystal white	7,500K	–	20,200 mm	100	200 mm	45 lm
LED P550-SEL CW 12V 150 100 68 B000	22176611	Crystal white	7,500K	–	15,250 mm	100	150 mm	45 lm
LED P550-SEL DL 12V 200 10 68 B000	22176605	Daylight white	6,500K	–	2,200 mm	10	200 mm	45 lm
LED P550-SEL DL 12V 200 100 68 B000	22176673	Daylight white	6,500K	–	20,200 mm	100	200 mm	45 lm
LED P550-SEL DL 12V 150 100 68 B000	22176612	Daylight white	6,500K	–	15,250 mm	100	150 mm	45 lm
LED P550-SEL NW 12V 200 10 68 B000	22176618	Neutral white	4,200K	–	2,200 mm	10	200 mm	37 lm
LED P550-SEL NW 12V 200 100 68 B000	22176537	Neutral white	4,200K	–	20,200 mm	100	200 mm	37 lm
LED P550-SEL NW 12V 150 100 68 B000	22176622	Neutral white	4,200K	–	15,250 mm	100	150 mm	37 lm
LED P550-SEL WW 12V 200 10 68 B000	22176625	Warm white	3,000K	–	2,200 mm	10	200 mm	34 lm
LED P550-SEL WW 12V 200 100 68 B000	22176676	Warm white	3,000K	–	20,200 mm	100	200 mm	34 lm
LED P550-SEL WW 12V 150 100 68 B000	22176626	Warm white	3,000K	–	15,250 mm	100	150 mm	34 lm
LED P550-SEL YW 12V 200 10 68 B000	22176623	Yellow white	–	570 nm	2,200 mm	10	200 mm	52 lm
LED P550-SEL YW 12V 200 100 68 B000	22176632	Yellow white	–	570 nm	20,200 mm	100	200 mm	52 lm
LED P550-SEL YW 12V 150 100 68 B000	22176624	Yellow white	–	570 nm	15,250 mm	100	150 mm	52 lm
LED P550-SEL R 12V 200 10 68 B000	22176606	Red	–	626 – 636 nm	2,200 mm	10	200 mm	13 lm
LED P550-SEL R 12V 200 100 68 B000	22176682	Red	–	626 – 636 nm	20,200 mm	100	200 mm	13 lm
LED P550-SEL R 12V 150 100 68 B000	22176613	Red	–	626 – 636 nm	15,250 mm	100	150 mm	13 lm
LED P550-SEL G 12V 200 10 68 B000	22176617	Green	–	525 – 540 nm	2,200 mm	10	200 mm	24 lm
LED P550-SEL G 12V 200 100 68 B000	22176683	Green	–	525 – 540 nm	20,200 mm	100	200 mm	24 lm
LED P550-SEL G 12V 150 100 68 B000	22176619	Green	–	525 – 540 nm	15,250 mm	100	150 mm	24 lm
LED P550-SEL B 12V 200 10 68 B000	22176620	Blue	–	455 – 460 nm	2,200 mm	10	200 mm	8 lm
LED P550-SEL B 12V 200 100 68 B000	22176684	Blue	–	455 – 460 nm	20,200 mm	100	200 mm	8 lm
LED P550-SEL B 12V 150 100 68 B000	22176621	Blue	–	455 – 460 nm	15,250 mm	100	150 mm	8 lm

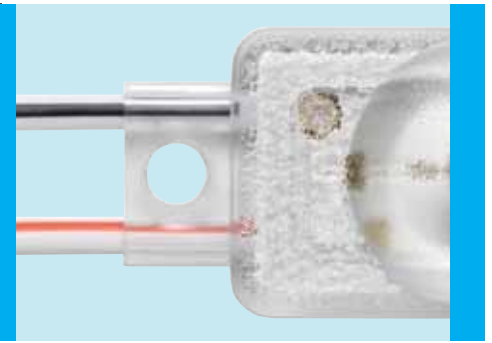
\*Tolerance range for optical and electrical data: ±15 % (photometric data for blue: ±30 %)



IP68 and uniform backlighting thanks to integrated lens



Small module sizes for maximum flexibility in handling and application



Strain relief for simpler mounting and installation

## TALEXchain CRYSTAL CLASSIC

Type (1 light point per module)	Art. no.	Colour	Colour temperature	Wave length range	Total length	Number of modules	Module distance	Typ. luminous flux per module*
LED P540-CLA CW 12V 150 10 68 B000	22176641	Crystal white	7,500K	–	1,750 mm	10	150 mm	24 lm
LED P540-CLA CW 12V 150 50 68 B000	22176647	Crystal white	7,500K	–	7,750 mm	50	150 mm	24 lm
LED P540-CLA CW 12V 100 50 68 B000	22176644	Crystal white	7,500K	–	5,300 mm	50	100 mm	24 lm
LED P540-CLA DL 12V 150 10 68 B000	22176642	Daylight white	6,500K	–	1,750 mm	10	150 mm	24 lm
LED P540-CLA DL 12V 150 50 68 B000	22176648	Daylight white	6,500K	–	7,750 mm	50	150 mm	24 lm
LED P540-CLA DL 12V 100 50 68 B000	22176645	Daylight white	6,500K	–	5,300 mm	50	100 mm	24 lm
LED P540-CLA R 12V 150 10 68 B000	22176643	Red	–	626 – 636 nm	1,750 mm	10	150 mm	9 lm
LED P540-CLA R 12V 150 50 68 B000	22176649	Red	–	626 – 636 nm	7,750 mm	50	150 mm	9 lm
LED P540-CLA R 12V 100 50 68 B000	22176646	Red	–	626 – 636 nm	5,300 mm	50	100 mm	9 lm

\*Tolerance range for optical and electrical data: ±15 %



### Application recommendation

The TALEXchain CRYSTAL series provides uniform illumination from a small number of LED modules thanks to the integrated lens. This means that a smaller number of converters are needed, which in turn reduces energy consumption.

### Luminous flux required to achieve luminance as a function of the mounting depth.

To achieve a particular luminance (brightness) in an application a certain luminous flux is needed. This is provided by an appropriate number of LED modules. The required luminous flux per pro m<sup>2</sup> is given in the diagram below for the white light colour, as a function of the mounting depth of the signage elements and the translucence of the diffuser (PMMA). The number of LED modules per m<sup>2</sup> can be calculated by dividing the required luminous flux per m<sup>2</sup> by the luminous flux of a single LED module.

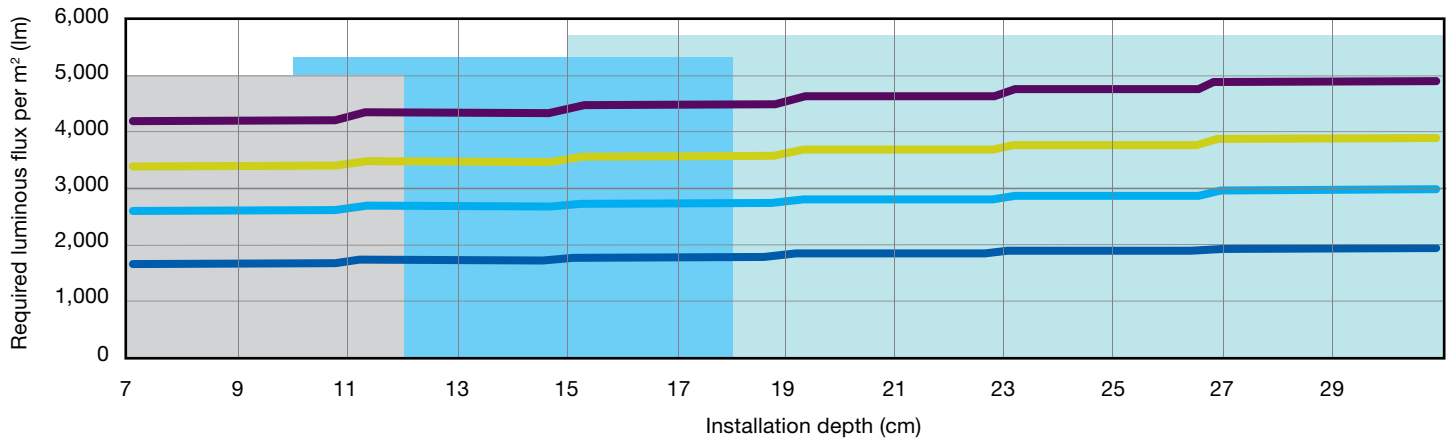
### Example

Given	Result
Translucence of the diffuser (PMMA): 40 %	See Fig. 2 below
Required luminance 400 cd/m <sup>2</sup>	See Fig. 2 below, green curve
Installation depth: 13 cm	See Fig. 2 below, green curve Recommended product: SELECT Required luminous flux: 2.400 lm/m <sup>2</sup>
	$\frac{2.400 \text{ lm/m}^2}{45 \text{ lm (SELECT)}} = 53 \text{ modules/m}^2$

### Note on the recommendation:

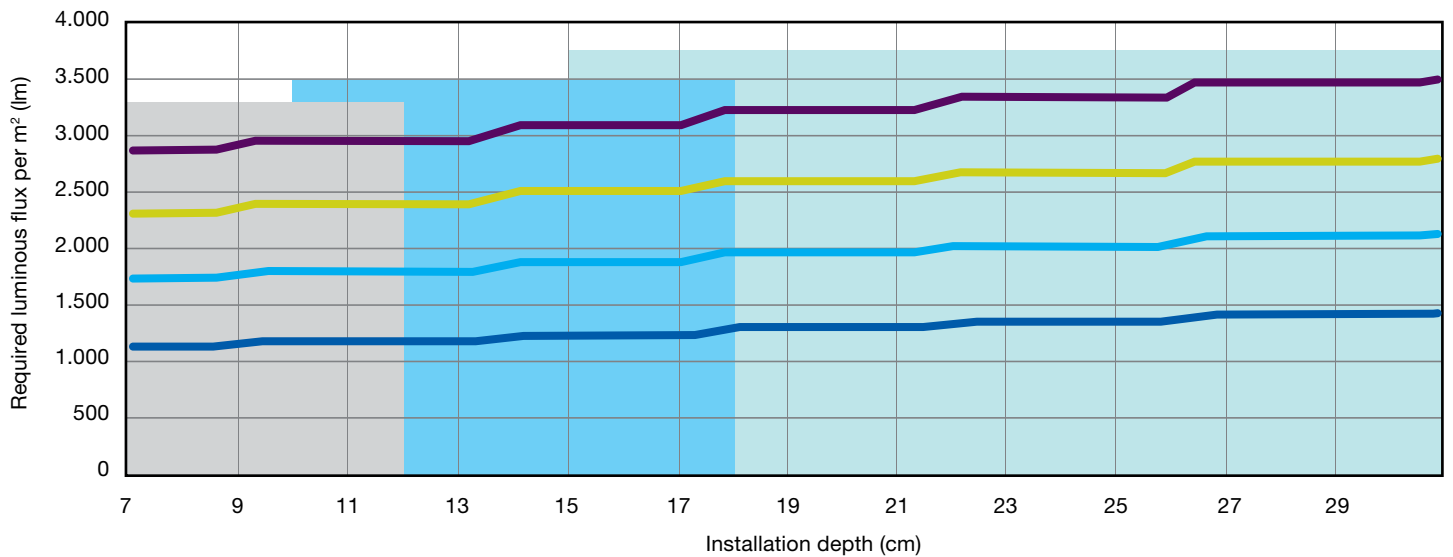
To minimise light pollution most countries impose a maximum luminance on signage, and the figure is being continually reduced. The recommendations below therefore focus on uniform illumination and not on maximum luminance.

Fig. 1: Diffuser (PMMA) – Standard white 30 % transmission, single face



- Required luminance 500 cd/m<sup>2</sup>
  - Required luminance 400 cd/m<sup>2</sup>
  - Required luminance 300 cd/m<sup>2</sup>
  - Required luminance 200 cd/m<sup>2</sup>
- Recommended installation depth, single face:
- TALEXchain CRYSTAL PREMIUM (100 lm/module): 15–30 cm
  - TALEXchain CRYSTAL SELECT (45 lm/module): 10–18 cm
  - TALEXchain CRYSTAL CLASSIC (24 lm/module): 7–12 cm

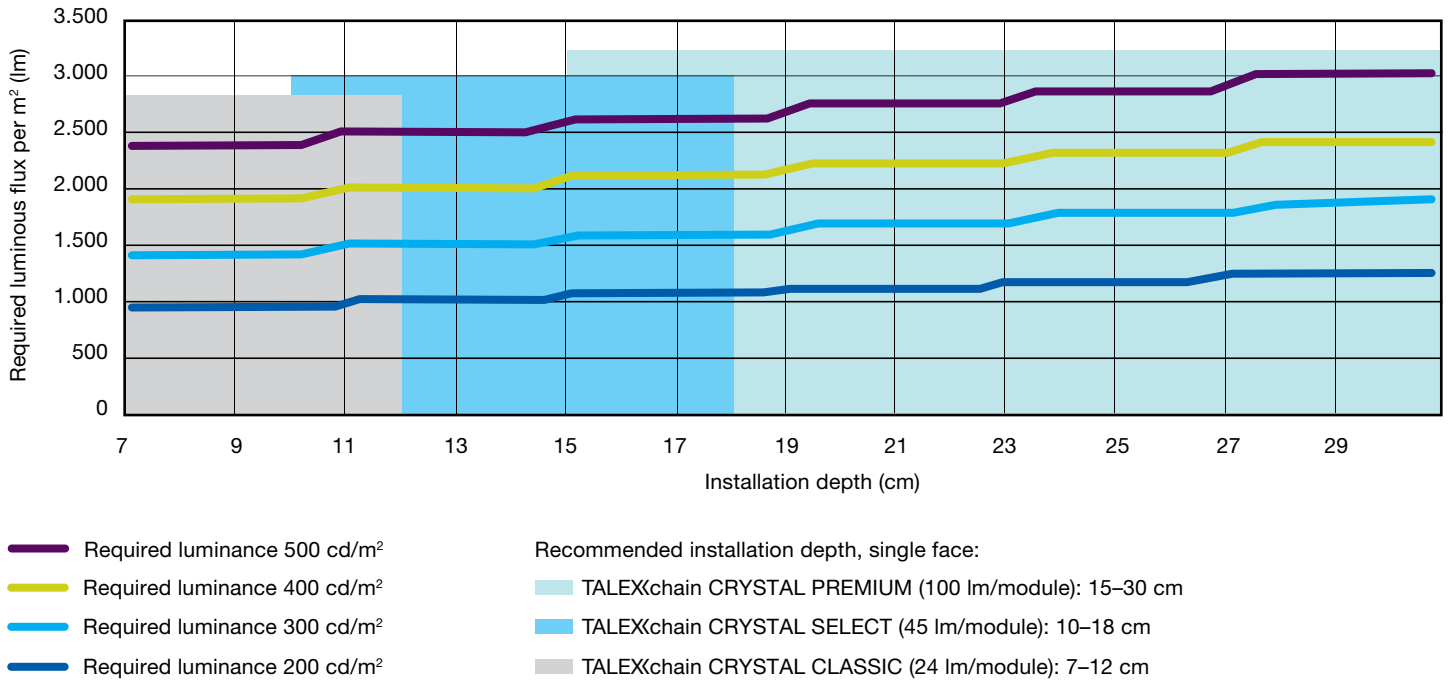
Fig. 2: Diffuser (PMMA) – Standard white 40 % transmission, single face



- Required luminance 500 cd/m<sup>2</sup>
  - Required luminance 400 cd/m<sup>2</sup>
  - Required luminance 300 cd/m<sup>2</sup>
  - Required luminance 200 cd/m<sup>2</sup>
- Recommended installation depth, single face:
- TALEXchain CRYSTAL PREMIUM (100 lm/module): 15–30 cm
  - TALEXchain CRYSTAL SELECT (45 lm/module): 10–18 cm
  - TALEXchain CRYSTAL CLASSIC (24 lm/module): 7–12 cm



Fig. 3: Diffuser (PMMA) – Standard white 55 % transmission, single face



**Note:**

The applications for TALEXchain CRYSTAL CLASSIC, SELECT and PREMIUM are recommended on the basis of uniform illumination for a minimum number of LED modules. Depending on the particular application, TALEXchain CRYSTAL CLASSIC can be used for mounting depths of less than 7 cm if a larger number of LED modules is installed or the module spacing is reduced. Similarly, the TALEXchain CRYSTAL SELECT and PREMIUM products can be used for smaller or larger signage elements by reducing or increasing the number of LED modules accordingly, depending on the application.

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