

LTPRXP series

10W continuous LED pattern projectors



KEY ADVANTAGES

Superior optical throughput

For illumination of large targets and fast 3D scanning, with minimal sensitivity to ambient light.

Perfectly sharp edges

LTPR series ensures thinner lines, sharper edges and more homogeneous illumination than lasers.

With laser emitters the illumination decays both across the line cross section and along the line width.

Laser emitters lines are thicker and show blurred edges; diffraction and speckle effects are also present.

Easy LED source replacement.

LTPRXP series extends the working range of the projector series by further increasing the LED light output, making these products the solution of choice for 3D measurement of large objects.

These projectors are powerful enough to rival lasers on large work areas in high speed, online, and line scan applications.

The high power can also be used in order to decrease system sensitivity to ambient light, for example, to perform 3D mapping of objects with illumination levels found in typical working environments.

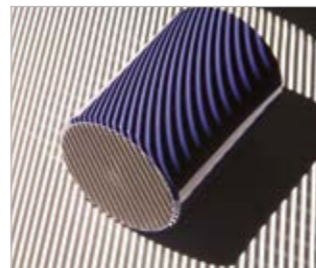
Examples of setup and applications



3D reconstruction.



Visualization & mapping.



Every kind of shape can be projected

Standard patterns



Stripe 0.5 mm line thickness.



Edge.



Grid 0.05 mm line thickness.



Line 0.5 mm line thickness.

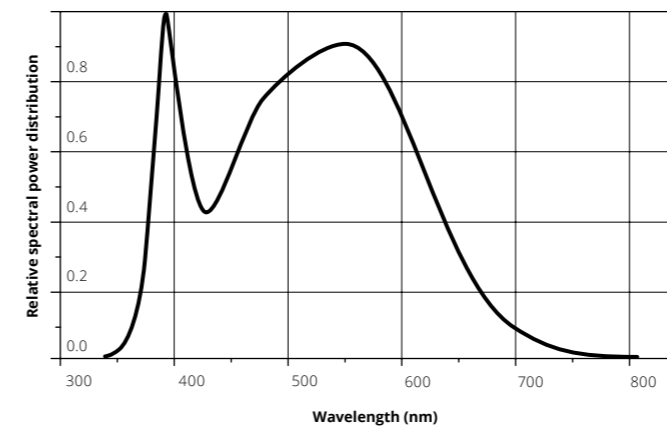
Custom patterns



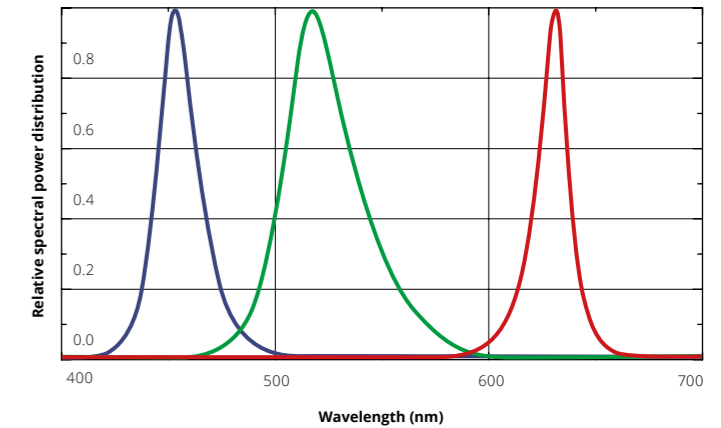
Electrical features

These LED projectors integrate built-in switching electronics that control the current flow through the LED source. The large heat sink ensures long lifetime at the highest power rates for the LED module and driving electronics.

Typical emission spectrum of white LEDs



Typical emission spectrum of R,G,B LEDs



Part number	Light	Device power ratings		Compatible products	
	Light color, wavelength peak	DC Voltage (V)	Power consumption (W)	Illuminance (kLux)	
LTPRXP-R	red, 630 nm	24	< 13	40	ENHR series
LTPRXP-G	green, 520 nm	24	< 13	68	ENHR series
LTPRXP-B	blue, 460 nm	24	< 13	9	ENHR series
LTPRXP-W	white	24	< 13	85	ENHR series

¹ With a 35 mm lens, F/# 1.4 at 100 mm working distance without projection pattern.

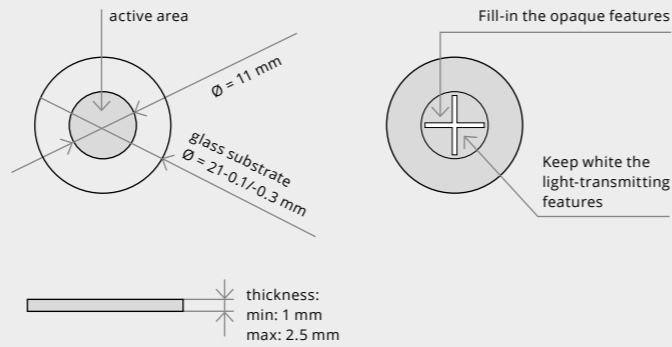
LTPRXP series

Product insight

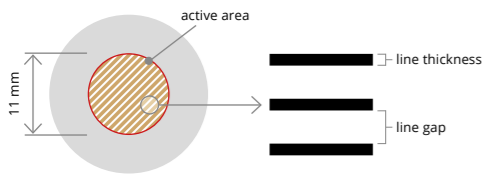


Custom-made pattern

Custom-made patterns can be supplied on request. A drawing with accurate geometrical information must be submitted (please refer to the instructions here below).



Pattern selection



Photolithography patterns

PT 0000 0100 P
format: line
line thickness 0.05 mm

PT 0000 0200 P
format: cross
line thickness 0.05 mm

PT 0000 0300 P
format: stripe
line gap 0.95 mm
line thickness 0.05 mm
line length 7.78 mm

PT 0000 0400 P
format: grid
line gap 0.95 mm
line thickness 0.05 mm
line length 7.78 mm

PT 0000 0500 P
format: edge
line gap 0.10 mm
line thickness 0.05 mm

Laser engraved patterns

PT 0000 0100 L
format: line
line thickness 0.5 mm

PT 0000 0200 L
format: cross
line thickness 0.5 mm

PT 0000 0300 L
format: stripe
line gap 0.5 mm
line thickness 0.5 mm
line length 7.78 mm

PT 0000 0400 L
format: grid
line gap 0.8 mm
line thickness 0.2 mm
line length 7.78 mm

PT 0000 0500 L
format: edge
line gap 0.10 mm
line thickness 0.5 mm

The projection pattern can be easily integrated into the LTPR projection unit by unscrewing the retaining ring that holds the pattern itself.

This simple procedure makes it easy to interchange different patterns on the same projection unit. The pattern outer diameter is 21 mm, while the active projection area is a circle of \varnothing 11 mm; all the significant features of the pattern are drawn inside this circle. The projection area will have the same aspect ratio as the pattern. The projection accuracy depends both on the pattern manufacturing accuracy and lens distortion. The edge sharpness of the projected pattern depends on both the lens resolution and the engraving technique: laser-engraved patterns (part numbers ending in "L") or photolithography-engraved patterns (part numbers ending in "P") can be chosen depending on the type of application.

Pattern specifications

Photolithography patterns

Substrate	Soda lime glass
Coating	Chrome
Geometrical accuracy	2 μ m
Edge sharpness	1.4 μ m

Laser engraved patterns

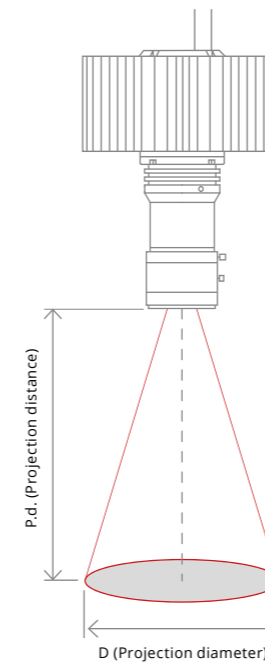
Substrate	Borofloat glass
Coating	Dichroic mirror
Geometrical accuracy	50 μ m
Edge sharpness	50 μ m

FULL RANGE OF COMPATIBLE PROJECTION OPTICS		
	ENHR series	p. 92
FULL RANGE OF PROJECTION PATTERNS		
	PTPR series	p. 218

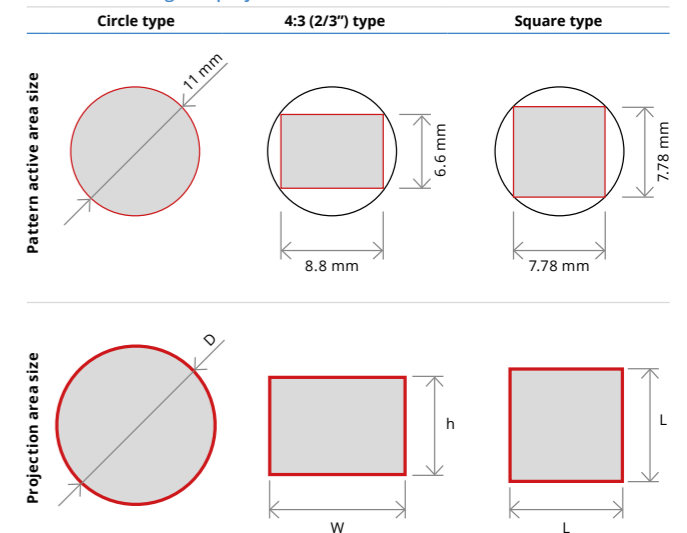
Projection lens selection

The pattern drawing must be inscribed in a 11 mm diameter circle, same diagonal of a 2/3" detector. For example, the pattern outer diameter could cover the entire 11 mm diameter area or be shaped as a 8.8 x 6.6 mm rectangle or also a square of 7.78 mm side length.

Unless the projection optics introduces significant distortion, the shape of the projected pattern will preserve the features and aspect ratio of the engraved pattern.



Pattern drawing and projection area



2 / 3" C-mount lenses

P.d.	@50	@75	@100	@150	@200	@250	@300	@400	@500
	mm	mm	mm	mm	mm	mm	mm	mm	mm
Focal length	D (Projection diameter)								
	(mm)								
6 mm	81	127	172	264					
8 mm	58 (*)	92	127	195	264	333			
12 mm	35 (*)	58 (*)	81	127	172	218	264		
16 mm		41 (*)	58 (*)	92 (*)	127	161	195	264	333
25 mm				55 (*)	77 (*)	99 (*)	121 (*)	165	209 (*)
35 mm						68 (*)	83 (*)	115	146

(*) = spacers may be needed to compensate back focal length.



Standard C-mount lenses.