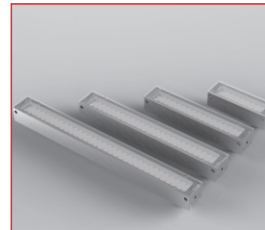# Professional lighting systems for industrial imaging

HI-LINE-D series

Backlight

>> **bright design with 2 rows of LEDs**
>> **also available as RGB version**
>> **4 standard lengths available:**
>> **D1 (78mm), D2 (134mm), D3 (190mm) and D4 (246mm)**
>> **solid, thermally optimised aluminum housing**
>> **simple and versatile mounting**
>> **for continuous, switched and pulsed operation**
>> **(depending on type)**

HI-LINE-D1 to -D4
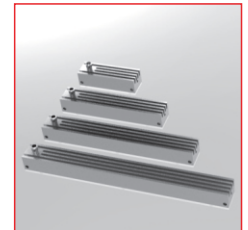
HI-LINE-D rear side with integrated cooling ribs

CE

Technical specifications

Housing	Aluminium, natural anodised
Front cover (within the scope of supply)*	Acrylic material 060 3mm
Total weight	**D1:** approx. 80g; **D2:** approx. 130g; **D3:** approx. 190g; **D4:** approx. 240g
Operating / ambient temperature	max. 50°C recommended
IP protection class	depending on the version
Connector	M8 plug (4-pin)** / **RGB version:** M8 plug (6-pin)**
Supply voltage***	**24VDC type or 12VDC type:** 24VDC resp. 12VDC (RGB version is not available as 12VDC type)
	SC type: For use in conjunction with a controller
Number of LEDs	**D1:** 16; **D2:** 32; **D3:** 48; **D4:** 64 **RGB version: D1:** 10; **D2:** 20; **D3:** 30; **D4:** 40
LED lifetime	The LED lifetime of our lights is very high, but depends on many different factors such as ambient temperature, current load, and so on. Further information is available in the **Technical information LED lifetime**.

  * more information and further front covers see section Accessories
  ** Cable not included in the scope of supply
*** more information see section Operating modes

Characteristics

Colour *		Wavelength (approx.)	Viewing angle	Current demand (24V type) ** / constant current max. (SC type) [mA]				Pulse current max. (SC type) *** [A]				Intensity **** [W/m²]			
				D1	**D2**	**D3**	**D4**	**D1**	**D2**	**D3**	**D4**	**D1**	**D2**	**D3**	**D4**
red		635nm	120°					0,2	0,4	0,6	0,8				
white		6500K	120°					0,2	0,4	0,6	0,8				
SH white		6500K	120°					1,2	2,4	3,6	4,8				
IR		850nm	120°					0,8	1,6	2,4	3,2				
blue		470nm	120°					0,3	0,6	0,9	1,2				
RGB	red	630nm	120°	xx per colour max. xxx tot.	xx per colour max. xxx tot.	xx per colour max. xxx tot.	xx per colour max. xxx tot.	xx per colour	xx per colour	xx per colour	xx per colour				
	green	530nm													
	blue	470nm													

  * other colours and types from UV to infrared on request
  ** stated current values of the 24V types should be considered approximate values
*** depending on the strobe conditions, recommended maximum values for a flash time of 1ms
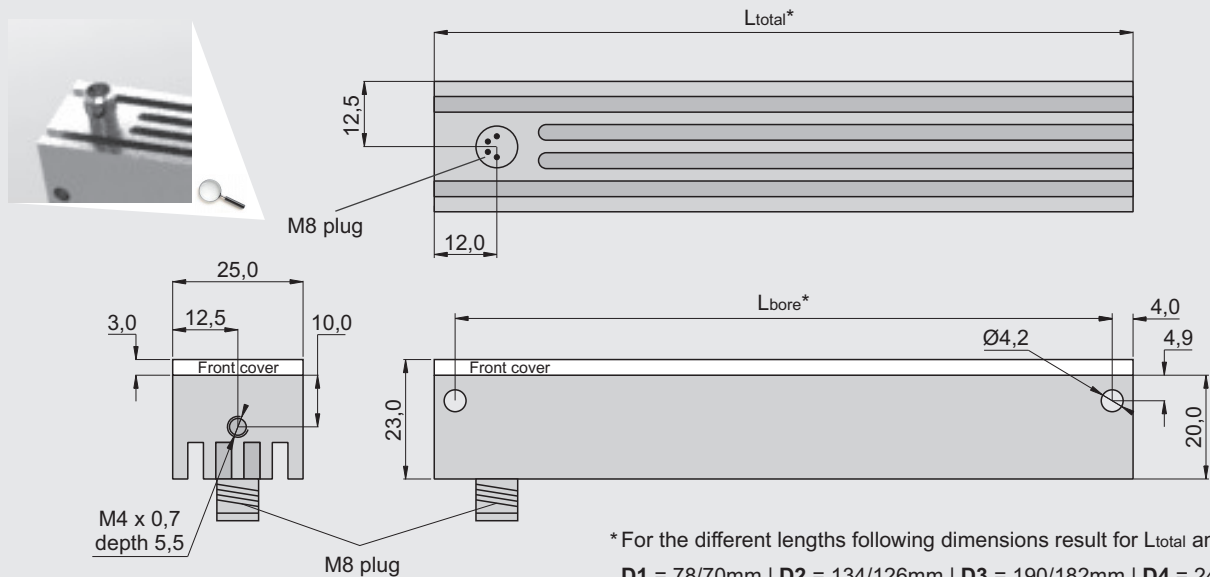**** approximately data measured in DC mode directly on diffuser

⚠ **Safety note!**   LED light systems can produce very intense radiation, which may possibly damage the eyes on improper use. Do not look directly into the light beam with unprotected eyes! Use eye protection!
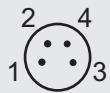
technical changes reserved

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Professional lighting systems for industrial imaging

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Dimensions

L_{total}*

12,5

M8 plug

12,0

25,0

3,0   12,5   10,0

Front cover

23,0

M4 x 0,7
depth 5,5

M8 plug

L_{bore}*

Front cover

Ø4,2

4,0

4,9

20,0

*For the different lengths following dimensions result for L_{total} and L_{bore}:

D1 = 78/70mm | **D2** = 134/126mm | **D3** = 190/182mm | **D4** = 246/238mm

PIN assignment connector

**M8 plug 4-pin
(Front view on housing)**

24VDC type

PIN	Colour	Function
1	brown	+ 24V
3	blue	- (Ch. 1)
(4)	(black)	(- Ch. 2)

12VDC type

PIN	Colour	Function
2	white	+ 12V
3	blue	- (Ch. 1)
(4)	(black)	(- Ch. 2)

SC type

PIN	Colour	Function
4	black	+
3	blue	- (Ch. 1)
(2)	(white)	(- Ch. 2)

**M8 plug 6-pin
(Front view on housing)**
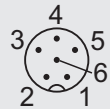
**RGB version
24VDC type**

PIN	Colour	Function
1	brown	+ 24V
6	rose	- Ch. R
5	grey	- Ch. G
3	blue	- Ch. B

SC type

PIN	Colour	Function
4	black	+ common
6	rose	- Ch. R
5	grey	- Ch. G
3	blue	- Ch. B

Operating modes

24VDC type / 12VDC type
The lights are designed depending on the version for continuous operation at 24VDC or 12VDC.
The following operating modes are possible:

- DC operation at an appropriate power supply with 24VDC or 12VDC
- Switched operation with a matching power supply e.g. via PLC, opto-relay or controller (GS or SC series)
- Brightness-controlled operation via controller (GS or SC series) in conjunction with suitable power supply
- Pulsed mode via controller (GS or SC series) in conjunction with suitable power supply. The LED current can be increased in pulse mode up to a factor of 2 to 3.

SC type
For pulsed, switched or brightness-controlled operation, the lights are also available as optimized SC versions. They can be used in combination with our controllers of the GS and SC series and provide optimized and maximum current flow, especially in pulsed operation. We will assist you in selecting the right components.

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HI-LINE-D series

Backlight

Technical notes (RGB version)

Operation of the RGB version directly at 24V
By switching on and off the ground lines of the 3 single colors (RGB), the individual colors can be activated and mixed.

Continuous/pulsed operation of the RGB version with SC4, SC6 or GS 420
When using 3-channel operation with the listed controllers, any colour mixture can be realised by setting a particular current to the 3 channels (RGB), both in continuous and pulsed operation.

Options / special models

Separate operation of the two LED rows (2-channel operation) (only for monochrome versions)
The lights of the TOP-LINE-D series can be optionally configured so that both LED rows can be controlled independently.

Different types of LEDs on both LED rows (2-channel operation) (only for monochrome versions)
The two LED rows of the TOP-LINE-D lights can be optionally equipped with different types of LEDs, for example, to realise two colours in one light.

Application notes (Backlight)

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