Instructions for Use

LDLF30x180-IR850/24V/-a

LED bar light, diffuse illumination, Luminous colour: Infrared - 850 nm

999.995.607.10-en-1.0

Impress

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Validity

These instructions for use are valid for the following device:

Device	Order no.
LDLF30x180-IR850/24V/-a	1-43-407

Product Identification

Designation	Description
LDLF	LED bar light, diffuse illumination
30x180	Dimensions light-emitting surface: 30 mm x 180 mm
IR850	Wavelength: Infrared - 850 nm
24V	24 V DC operating voltage, with integrated lighting controller
a	Revision

TABLE OF CONTENTS

1 INFORMATION ABOUT THE INSTRUCTIONS OF USE

This document contains technical information, important instructions for correct installation, commissioning and use, as well as product information which were up-to-date at the time of going to press.

Using this document makes it easier for you to familiarise yourself with the device and avoid malfunctions caused by improper operation.

The instructions of use and the local regulations and rules must be followed.

To ensure a save and proper application, please read the instructions of use carefully and keep them for future reference.

1.1 Intended Use

The device is intended exclusively for use as a lighting element for industrial image processing in automation technology.

The device is not suitable for use in potentially explosive areas.

It is intended for use in a confined environment.

The device may only be used if it is in technically faultless condition and only for its intended purpose, and only in accordance with the specifications in this instructions of use by authorised operative personnel, who are aware of the safety rules and hazards.

If the device is planned to be used for any other purpose or in a different environment, the express authorisation of the manufacturer must be obtained in advance. Any modifications or adaptations required may only be made by the manufacturer.

1.2 Improper Use

All unintended use and all device-related activities not described in these instructions of use is to be deemed as unauthorised misuse outside the legal limits of indemnity of the manufacturer.

Reasonably foreseeable misuse is:

- Non-compliance with the instructions for use,
- Faulty operation,
- Operating by personnel not qualified or instructed,
- Operating the device if it is not in a proper technical condition,
- Operating the device in ambient conditions differing from the corresponding specifications in the instructions of use
- Operating the device with voltages differing from the corresponding specifications in the instructions of use,
- Using spare parts which are not original parts from the manufacturer,
- Using incompatible accessory components,
- Improper maintenance and repair works,
- Unauthorised modifications to the device.

1.3 Qualified Personnel

The device may only be assembled, commissioned, operated, maintained, installed, set up, cleaned, repaired and transported by qualified skilled personnel.

A qualified person is deemed to be someone who has been trained and instructed for his/her activities with the device, and who has proven his/her capability to the purchaser. The operating personnel must be authorised by the purchaser for those activities at the device.

For the installation and operation of the device, the skilled personnel must know and comply with the applicable guidelines and standards for handling control equipment, electrical installations and working materials.

1.4 Warranty and Liability

The contents of this document have been checked carefully and correspond to current legislation and best practise at the time of going to press.

However, the manufacturer shall not be liable for any damage arising from the use of this edition of the manual, and rejects any warranty derived therefrom.

Within the bounds of the legal requirements, the manufacturer shall only be responsible for the technical safety characteristics of the device if the maintenance, repairs and modifications to the device are performed by himself or by authorised skilled personnel in accordance with his instructions.

Loss of warranty

The manufacturer shall accept no liability or warranty in the event of improper use, opening of the device or incorrect maintenance.

2 SAFETY

2.1 Presentation of Safety Instructions

Each safety instruction is introduced by a key word and colour highlighted.

The key word indicates the degree of danger. The danger and its cause are described, and then the measures to prevent conceivable consequences of the danger. These measures must be taken.

⚠ DANGER

Indicates an imminent danger with high risk, resulting in severe injuries or death if not avoided.

⚠ WARNING

Indicates a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.

⚠ CAUTION

Indicates a hazardous situation with low risk, resulting in minor or medium injuries if not avoided.

NOTICE

Indicates a situation that may result in property damage.

2.2 Safe Handling of the Device

Read the following applicable safety instructions carefully and completely. Follow the instructions for your own safety, the safety of other people, and to avoid damage to the device and the connected technical equipment. Hazards going beyond the general safety instructions are referred to separately at the relevant points in this manual.

⚠ CAUTION

Risk of injury due to electric shock.

- Before starting work on the device, disconnect it from the operating voltage supply.
- Follow all applicable safety regulations for the preparation and operation of electrical devices.

3 SCOPE OF DELIVERY AND ACCESSORIES

3.1 Scope of Delivery

Designation	Quantity
Device LDLF30x180-IR850/24V/-a	1 x
Instructions for Use LDLF30x180-IR850/24V/-a	1 x

3.2 Accessories

Connection cable M8, 4-pin, open cable end

Designation	Description	Order no.
Cable with M8 socket, 4-pin, straight, 1 m	Connection cable with 4-pin M8 socket and open cable end with ferrules, 4 x 0.5 PUR, IP67, straight socket	1-11-611
Cable with M8 socket, 4-pin, straight, 2 m		1-11-612
Cable with M8 socket, 4-pin, straight, 3 m		1-11-613
Cable with M8 socket, 4-pin, straight, 5 m		1-11-614

Extender cable M8, 4-pin

Designation	Description	Order no.
M8-Extender cable, 4-pin, 1.5 m, straight	Extender cable with 4-pin M8 socket and 4-pin M8 plug, 4 x 0.5, PUR, IP67, socket and plug straight	1-11-094
M8-Extender cable, 4-pin, 3 m, straight		1-11-095

4 DEVICE DESCRIPTION

4.1 Device Views

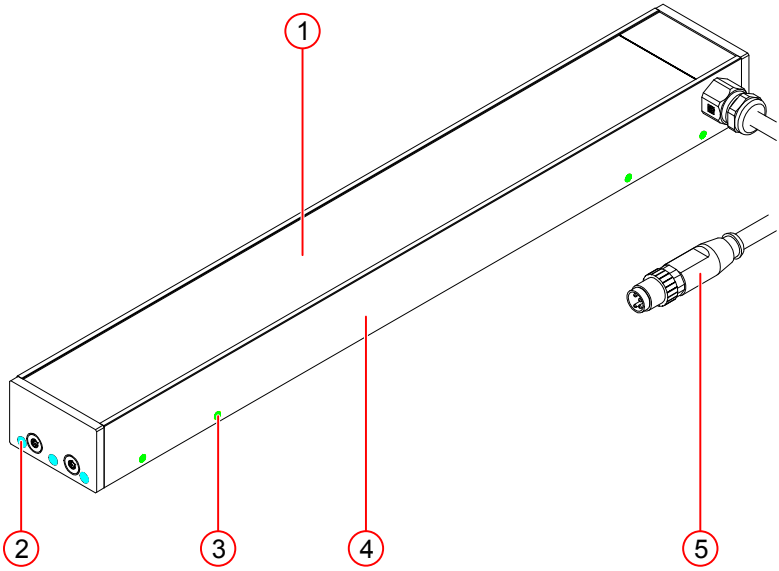


Image 1: Device view

1 Light-emitting surface
2 3 x M3 mounting hole, depth 10.5 mm (on both sides)
3 4 x M3 mounting hole, depth 4.5 mm (on both sides)
4 Casing
5 Connection cable with 4-pin M8 connector

4.2 Notices on the device

Following instructions are provided on the device:

Type plate

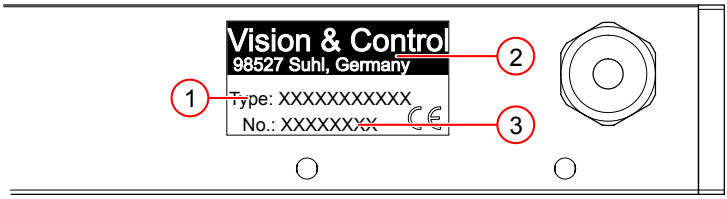


Image 2: Type plate

1 Device designation
2 Manufacturer information
3 Serial number

5 TECHNICAL DATA

5.1 General Parameters

Parameter	Characteristic
Housing material	Aluminium, black anodised
Optical material	PMMA
Housing dimensions	35 mm x 202 mm x 22 mm (without connector)
Dimensions light-emitting surface	30 mm x 180 mm
Weight	220 g
Degree of protection (IP)	IP 50
Safety class	Class III, safety extra low voltage (SELV)
Risk group (DIN EN 62471)	Risk group 0 (exempt group)

Connecting cable

Parameter	Characteristic
Length	150 mm
Cable diameter	5.0 mm
Core cross-section	4 x 0.5 mm²
Material cable coating	PUR
Drag chain suitable	yes
Bending radius cable fixed	at least 5 x cable diameter
Bending radius cable moved	at least 10 x cable diameter
Bending cycles	at least 4 million
Robot-suitable	no

Connector

Parameter	Characteristic
Connector	4-pin M8 connector
Mechanical operation	> 100 mating cycles
Degree of protection (IP)	IP 67 (if connected)
Rated current	5 A
Rated voltage	30 V

5.2 Electrical Parameters

Parameter		Min	Nom	Max
Operating voltage U_O		18 V	24 V	30 V
Power consumption at U_O = 24 V DC			6.2 W (1)	
Switch input ON/OFF	Input voltage OFF	0 V		2.7 V
	Input current OFF	0 mA		2 mA
	Input voltage ON	3.7 V		30 V
	Input current ON		5 mA	10 mA
	Input delay t_D		150 µs	

(1) The nominal values refer to an ambient temperature of 25 °C and free convection.

5.3 Photometric Parameters

Parameter	Nom
Peak wavelength λ_{peak}	860 nm
Centroid Wavelength $\lambda_{centroid}$	850 nm
Spectral bandwidth $\Delta\lambda$	30 nm
Continuous operation, switchable	
Radiance	90 W/(m²sr)

Spectral Emission

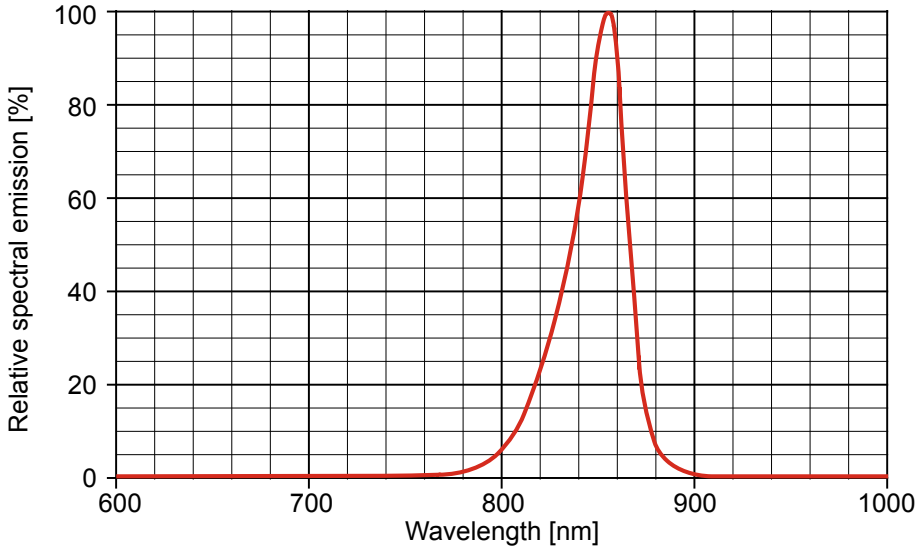


Image 3: Spectral emission

5.4 Conditions for Operation, Storage and Transport

Store and transport the device in shock-proof box, if possible in the original packaging.

For accessories, connected devices and components observe the specific information in the associated instructions for use.

Ambient Conditions

	Operation	Storage / Transport
Temperature	0 °C to 45 °C	- 25 °C to 60 °C
Air humidity	20 % to 80 %	20 % to 95 %
Condensation water	not permissible	not permissible

5.5 Technical Drawings

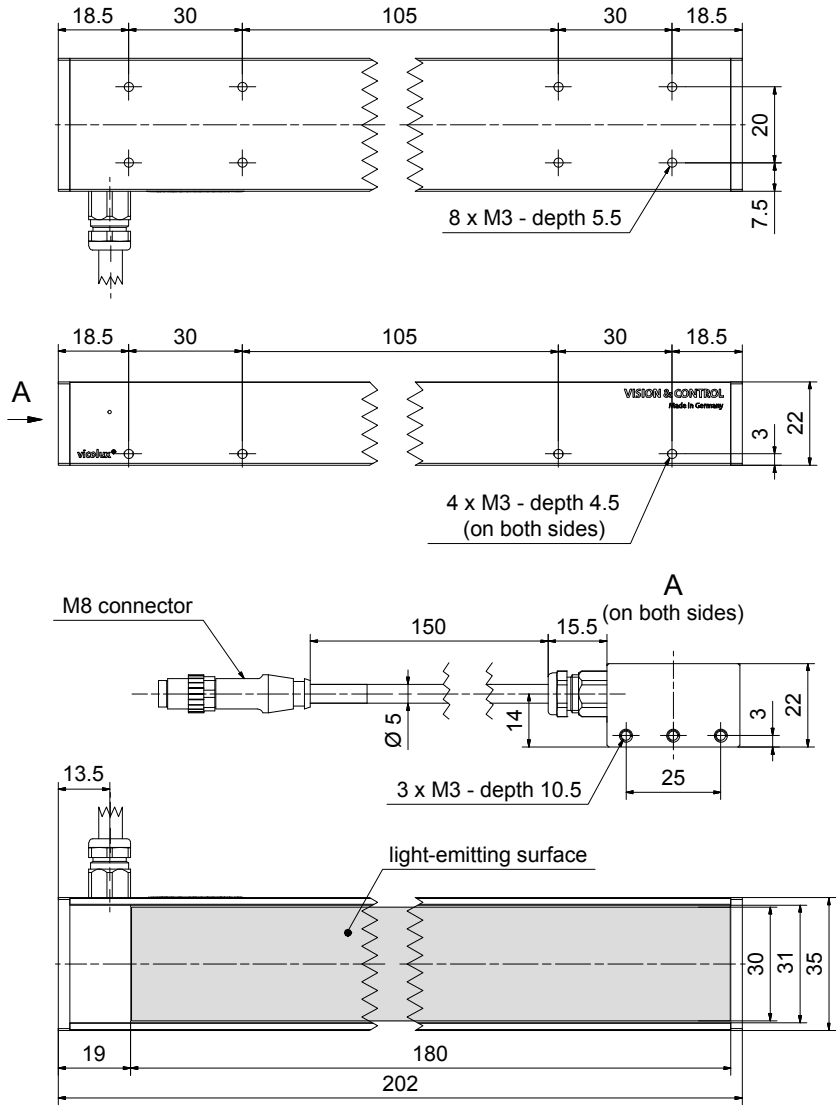


Image 4: Technical drawings (dimensions in mm)

6 COMMISSIONING

6.1 Unpacking

1. Lift the cardboard, together with the device, out of the carton.
2. Fold out the tucked in sides on the bottom of the cardboard.

➨ Loosening the film and forming an insertion pocket.

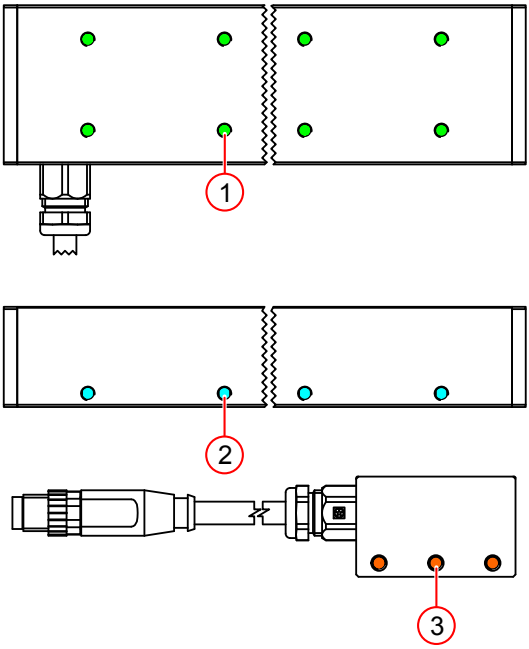
3. Remove the device out of the insertion pocket.
4. Dispose the packing material.

6.2 Mounting the Device

NOTICE

Installation and connection operations may only be performed in the off and de-energised state.

To mount the device, tapped holes are located at the sides.



1 8 x M3 tapped hole at the bottom
Maximum screw-in depth: 5.5 mm
2 4 x M3 tapped hole at both long sides
Maximum screw-in depth: 4.5 mm
3 3 x M3 tapped hole at both short sides
Maximum screw-in depth: 10.5 mm

6.3 Connecting

NOTICE

Installation and connection operations may only be performed in the off and de-energised state.

NOTICE

Cable damage

- Comply with the specified minimum bending radius.
- Cables must generally be mounted with a strain relief clamp.
- Use cables corresponding to the specification (see data sheet).

6.3.1 Pin assignment

Use the M8 connector to connect the device according to the pin assignment.

Pin assignment

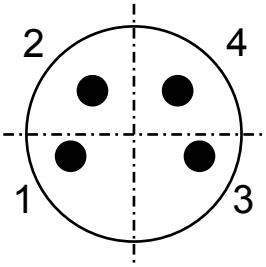
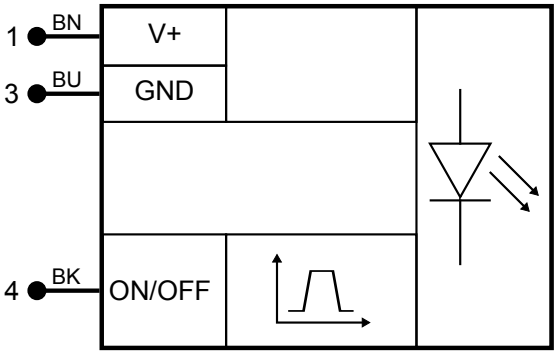


Image 5: M8 male plug, 4-pin

Connection diagram



Pin	Core colour	Signal	Description
1	BN (brown)	V+	Operating voltage
2	WH (white)	NC	Do not use
3	BU (blue)	GND	Ground
4	BK (black)	ON/OFF	Switch input

7 OPERATION

⚠ CAUTION

Physiological effects by flashing lights

- Working under flashing lights can cause effects such as headache, nausea, or epileptic seizures.
- Avoid exposure to certain kinds of flashing lights or stroboscopes.
- Wear protective goggles.
- If you have a known history of epilepsy, do not work or stay in areas where there are flashing lights or stroboscopes.

⚠ CAUTION

Impairment of eye-sight due to dazzling.

- Do not look during operation directly in LED lighting or whose rays.
- Wear protective goggles.
- In the event of dazzling, allow sufficient time for the eyesight to adapt to the ambient illumination before commencing other activities.

⚠ CAUTION

Danger of burns due to hot surfaces.

- The housing of the device can reach temperatures exceeding 55 °C during operation.
- Do not touch the device.
- Allow the surface to cool down before touching.

7.1 Making Operational Readiness

The device is switched on by applying the operating voltage.

The device is switched off by disconnecting it from the operating voltage supply.

7.2 Operating Modes

The integrated controller supports the following operating modes:

- Continuous operation
- Continuous operation, switchable

Continuous operation

The lighting is switched on by setting the ON/OFF signal after the delay time t_d. Resetting the ON/OFF signal turns off the lighting.

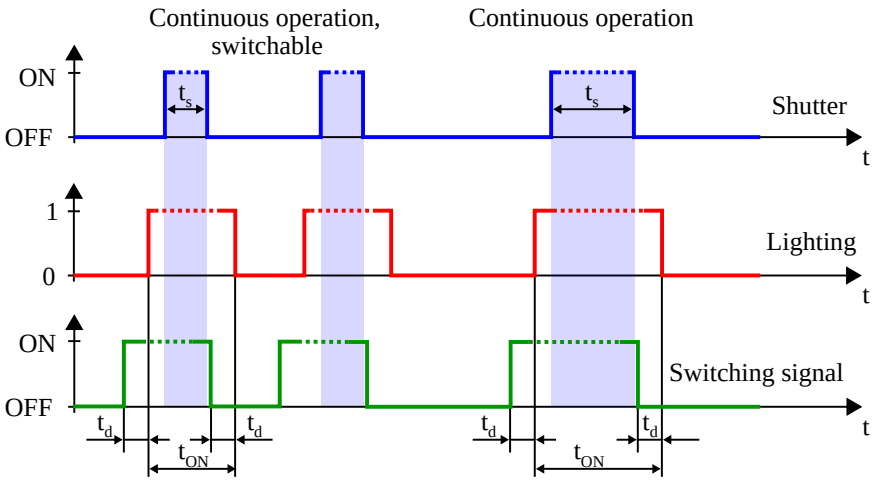
Continuous operation, switchable

The switchable continuous operation is carried out by continuously setting and resetting the switching signal ON/OFF.

Consider the switching delay time t_d of the lighting. Set the exposure time of the camera to be within the t_{ON} range.

The length of the Power-on time t_{ON} corresponds to the length of the switching signal.

Switching behaviour



t_s Exposure time of the camera

t_{ON} Power-on time

t_d Delay time

		Min	Nom	Max
Delay time	t_d		150 µs	
Power-on time	t_{ON}	150 µs		∞

8 MAINTENANCE AND SERVICE

8.1 Maintenance

The device is maintenance-free. Depending on the operating environment, it may have to be cleaned.

The housing can be cleaned according to the conditions applicable to the given protection class.

Cleansers must not be applied directly to the housing, and the housing must not be bathed.

Cleaning the outside

- Clean the outside with a damp cloth.
- Remove excessive dirt with an approved anodised aluminium cleaner. Refer to the instructions of the cleaner.
- The connectors must be clean and dry before the device is connected and put into operation.

Cleaning the cover (light-emitting surface)

- Use a soft, clean cloth for cleaning.
- The cover must be cleaned with an approved PMMA (Polymethylmethacrylat) cleaner. Refer to the instructions of the cleaner.

Cleaning by the manufacturer

The device can be sent to the manufacturer for cleaning (for a fee). Please contact our technical support.

8.2 Service

Technical Support

Please contact our technical support if you have any technical questions concerning our products.

We will be glad to be of service:

Monday to Thursday 8:00 to 17:00, and Friday 8:00 to 15:00.

Vision & Control GmbH

Mittelbergstraße 16

98527 Suhl, Germany

Phone: +49 (0) 3681 7974-0

www.vision-control.com

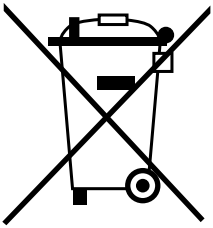
Defective device

If the device has a defect, the manufacturer can repair or exchange it. Please contact your local sales partner or technical support.

9 DISPOSAL

The device and its accessories and packaging must be sent to environmentally compatible recycling.

Do not throw electrical devices or tools into the household waste!



According to European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation in national law, unusable electric tools must be collected separately, and sent to environmentally compatible recycling.

Disposal, including that of individual components, must also always be in a way that does not harm the environment, which means it must be done in accordance with the currently valid legal regulations.

Please contact the manufacturer, your local specialist dealer or the relevant national authority for the proper disposal of old devices.

The electrical and electronic components must be sent to a specialist recycling company or to the manufacturer for proper disposal.

10 EU DECLARATION OF CONFORMITY

CE

Vision & Control GmbH
Mittelbergstraße 16
D-98527 Suhl, Germany
Representative: Dr. Jürgen Geffe, Managing director

We, Vision & Control GmbH Suhl, declare that the product described below

– Designation: LDLF30x180-IR850/24V/-a
– Order no.: 1-43-407

has been manufactured in accordance with the following standards and normative documents:

- 2014/30/EU - Electromagnetic compatibility (EMC directive)
- DIN EN 61000-6-2:2006-3 - Electromagnetic compatibility (EMC) - Immunity for industrial environments
- DIN EN 61000-6-4:2011-09 - Electromagnetic compatibility (EMC) - Emission standard for industrial environments
- DIN EN 61000-4-2:2009-12 Electromagnetic compatibility (EMC) - Testing and measurement techniques - Electrostatic discharge immunity test
- DIN EN 62471:2009-03 / EN 62471:2008 - Photobiological safety of lamps and lamp systems

The product complies with the requirements of Directive 2011/65/EU (RoHS 2) of June 8, 2011 along with Directive 2015/863/EU (RoHS 3) of March 31, 2015 of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Suhl, 2018-11-30

Dr. Jürgen Geffe

Managing director

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