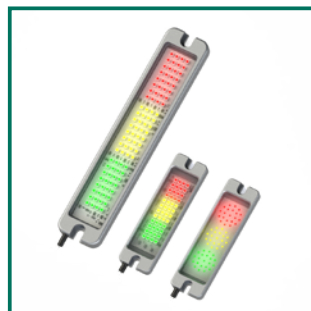


PRODUCT CATALOG

Industrial, signal
and system lights

SCHREMPF
electronic

Machine lights
Workplace lights
Signal lights
Status lights
Machine handles
Control and signaling devices



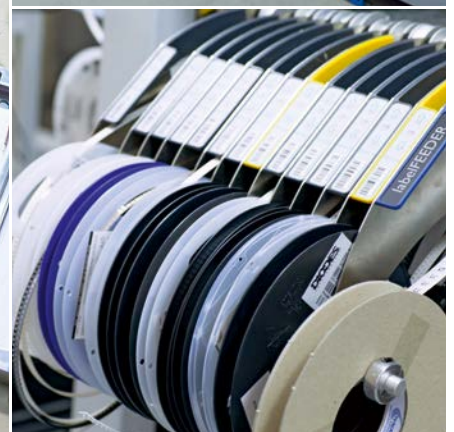
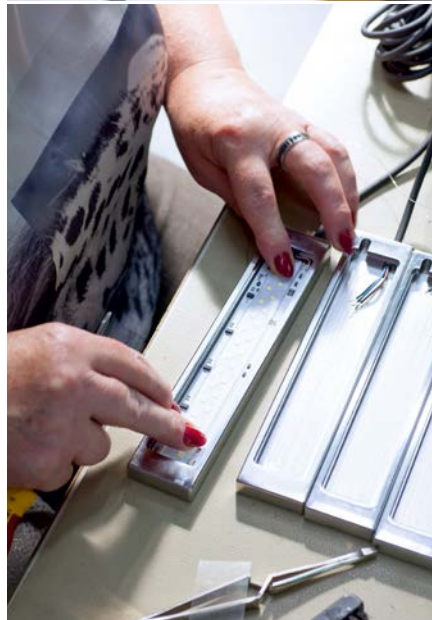
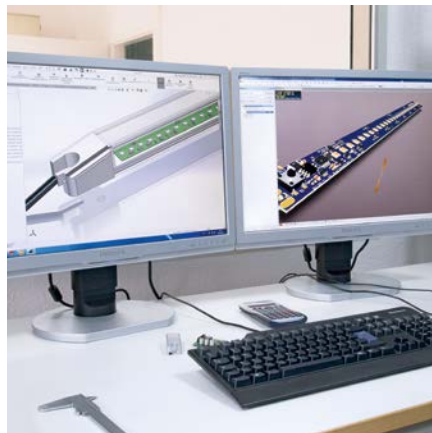
Innovations and quality from one source

Our products are “**Made in Germany**”, completely developed at the site in Sulzbach near Frankfurt am Main and produced in our own SMD and assembly plant.

Alongside high standards of quality, this guarantees a high level of availability and also a large number of different versions.

The in-house development of products enables us to quickly respond to technological trends and customer-specific requirements.

- Designed for heavy industrial use
- Easy electrical installation
- Assembly-friendly, robust design
- Compact, space-saving solutions
- High protection classes
- Long service life
- High energy efficiency
- Customized adjustments



Contents

Machine lights

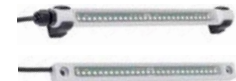
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Universal and high glare suppression



- 6 **Series ML-x-45LK**
For corner mounting, high glare suppression



- 8 **Series ML-x-LK/ML-x-LKF**
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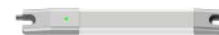


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Machine lights

Series ML-x-UNI

The **ML-x-UNI** machine light series was developed for a versatile and universal range of applications.

A **high level of glare suppression with a homogeneous light-emitting surface** enable these lights to be fitted regardless of the installation length. The front optic is made of **impact-resistant polycarbonate**.

The diverse range of available lengths and connection options with a 3 m PVC/PVC cable or PUR/PVC cable with a 270 mm/M12 connector plug covers a wide range of requirements for your applications. The lights in the ML-x-UNI-D series can also **be dimmed to 3 different levels** via a switch.

Long and dimmable lights with a high level of glare suppression offer huge advantages especially for the visual inspection of surfaces.



TECHNICAL DATA

- Operating voltage 21–27 V DC
- Color temperature 5,700 K, Ra≥90
- Max. ambient temperature 50° C
- High level of glare suppression with highly effective diffuser
- High level of mechanical stability due to the polycarbonate optics and aluminium housing
- Variants with integrated dimming
- Variants with a M12 connector plug available
- IP 54 protection class, protection class 3

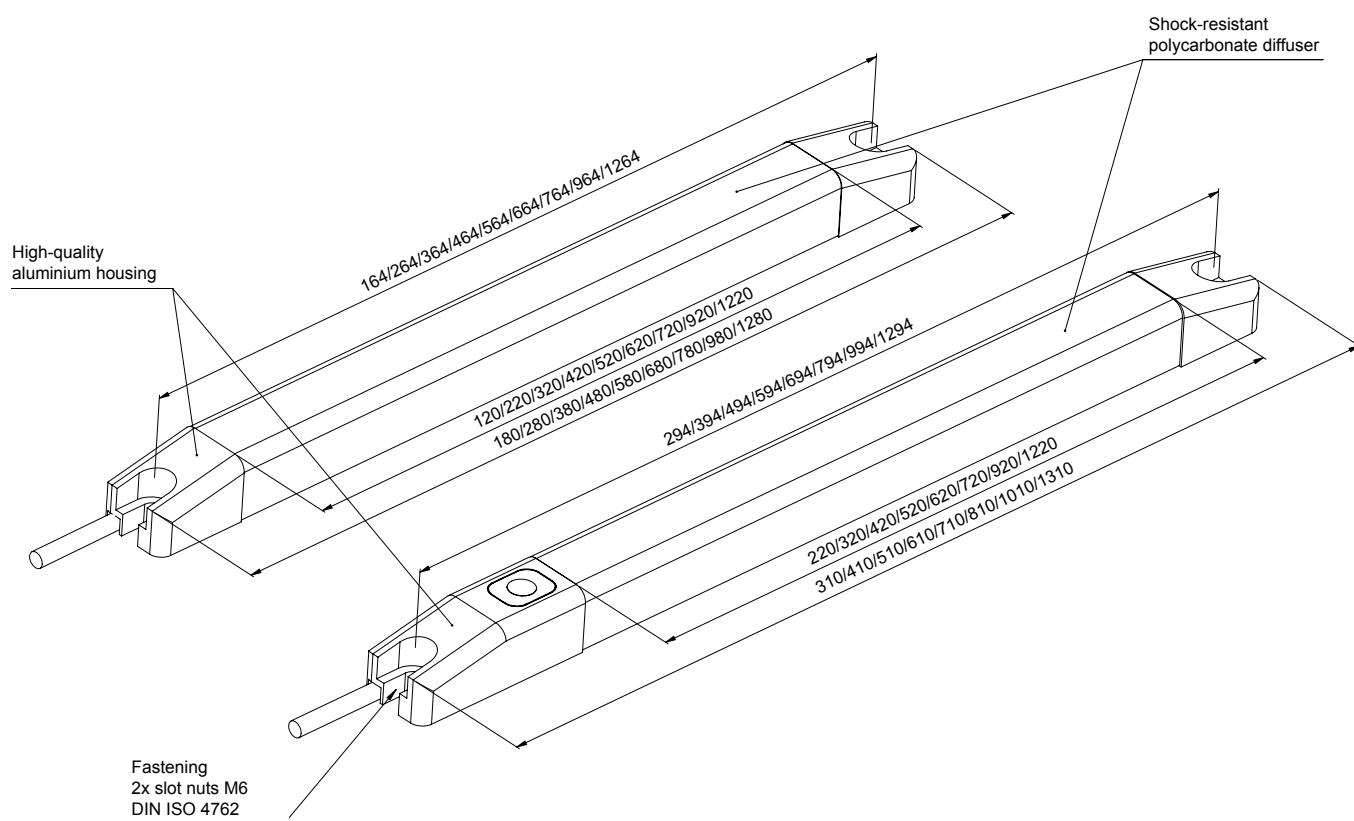


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Part no
Version without integrated dimming, with 3 m PVC/PVC cable or M12 connector				
ML-3-UNI LC/ML-3-UNI M12	135	80	180 x 24 x 20	10948/10949
ML-6-UNI LC/ML-6-UNI M12	270	160	280 x 24 x 20	10902/10950
ML-9-UNI LC/ML-9-UNI M12	400	240	380 x 24 x 20	10953/10954
ML-12-UNI LC/ML-12-UNI M12	530	300	480 x 24 x 20	10957/10958
ML-15-UNI LC/ML-15-UNI M12	670	360	580 x 24 x 20	10961/10962
ML-18-UNI LC/ML-18-UNI M12	800	430	680 x 24 x 20	10965/10966
ML-21-UNI LC/ML-21-UNI M12	930	490	780 x 24 x 20	10969/10970
ML-27-UNI LC/ML-27-UNI M12	1,200	580	980 x 24 x 20	10973/10974
ML-36-UNI LC/ML-36-UNI M12	1,600	720	1,280 x 24 x 20	10977/10978

ACCESSORIES OPTIONAL

- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/
TN-72-M12
- Extensions V-M12

(Look at accessories page 67, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Part no
Version with integrated dimming, with 3 m PVC/PVC cable or M12 connector				
ML-6-UNI-D LC/ML-6-UNI-D M12	270	80	310 x 24 x 20	10951/10952
ML-9-UNI-D LC/ML-9-UNI-D M12	400	160	410 x 24 x 20	10955/10956
ML-12-UNI-D LC/ML-12-UNI-D M12	530	240	510 x 24 x 20	10959/10960
ML-15-UNI-D LC/ML-15-UNI-D M12	670	300	610 x 24 x 20	10963/10964
ML-18-UNI-D LC/ML-18-UNI-D M12	800	360	710 x 24 x 20	10967/10968
ML-21-UNI-D LC/ML-21-UNI-D M12	930	430	810 x 24 x 20	10971/10972
ML-27-UNI-D LC/ML-27-UNI-D M12	1,200	490	1,010 x 24 x 20	10975/10976
ML-36-UNI-D LC/ML-36-UNI-D M12	1,600	580	1,310 x 24 x 20	10979/10980

Machine lights

Series ML-x-45LK

The machine lights series **ML-x-45LK** are built on the base of a **system profile housing in the grid of 20 mm and slot 5**. Two included movable slot nuts facilitate an easy mounting in machines and apparatus.

The front optic is made of **shock-resistant and shatterproof polycarbonate**. Due to the high degree of diffusion it has a high glare suppression and a homogenous light-emitting surface.

The machine lights of the series ML-x-45LK are available with whether a 3 m PVC/PVC cable with an open end or a M12 connector plug (*M12 versions). The lights are available in 9 power versions and are perfectly suitable for **space-saving mounting in corners**.



TECHNICAL DATA

- Operating voltage 21–27 V DC
- Light color daylight white
- Color temperature 5,700 K
- Color rendering index Ra≥90
- Max. ambient temperature 50° C
- Integrated overvoltage, current and temperature protection
- IP 54 protection class, protection class 3



System
profile
housing
20 mm

Glare free

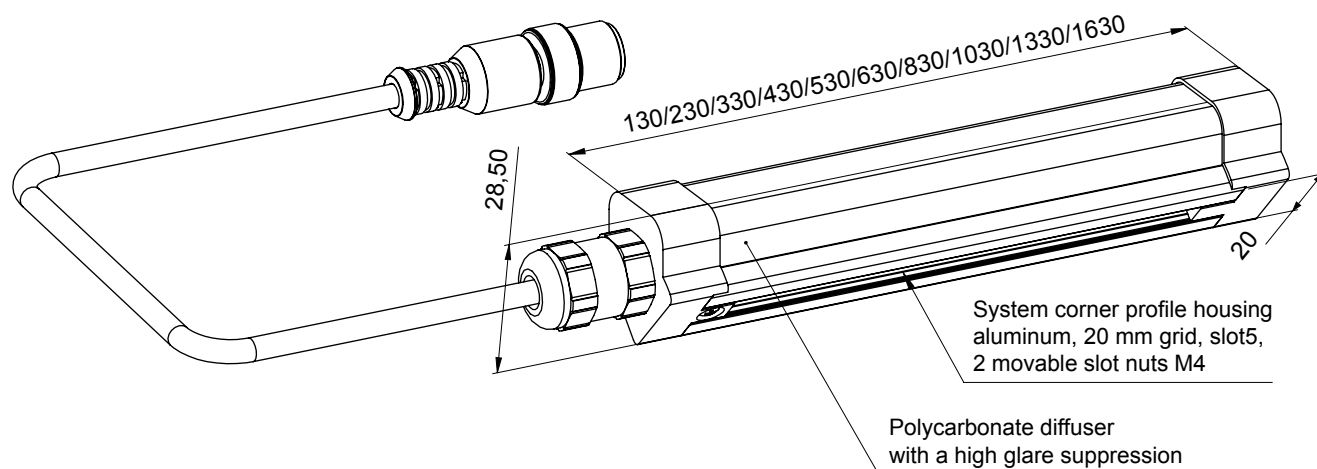
Space-
saving corner
mounting

Typ	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Part no.
Version with M12 connector 				
ML-3-45LK M12	135	80	130 x 28.5 x 28.5	11136
ML-6-45LK M12	270	160	230 x 28.5 x 28.5	11138
ML-9-45LK M12	400	240	330 x 28.5 x 28.5	11140
ML-12-45LK M12	540	300	430 x 28.5 x 28.5	11142
ML-15-45LK M12	670	360	530 x 28.5 x 28.5	11144
ML-18-45LK M12	800	430	630 x 28.5 x 28.5	11146
ML-21-45LK M12	930	490	730 x 28.5 x 28.5	11148
ML-27-45LK M12	1,200	580	930 x 28.5 x 28.5	11150
ML-36-45LK M12	1,600	720	1,230 x 28.5 x 28.5	11152
ML-45-45-LK M12	2,000	800	1,630 x 28.5 x 28.5	11154

ACCESSORIES OPTIONAL

- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/TN-72-M12
- Extensions V-M12

(Look at accessories page 67, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x B x H (mm)	Part no.
Version with 3 m PUR/PVC cable 				
ML-3-45LK LC	135	80	130 x 28.5 x 28.5	11135
ML-6-45LK LC	270	160	230 x 28.5 x 28.5	11137
ML-9-45LK LC	400	240	330 x 28.5 x 28.5	11139
ML-12-45LK LC	540	300	430 x 28.5 x 28.5	11141
ML-15-45LK LC	670	360	530 x 28.5 x 28.5	11143
ML-18-45LK LC	800	430	630 x 28.5 x 28.5	11145
ML-21-45LK LC	930	490	730 x 28.5 x 28.5	11147
ML-27-45LK LC	1,200	580	930 x 28.5 x 28.5	11149
ML-36-45LK LC	1,600	720	1.230 x 28.5 x 28.5	11151
ML-45-45LK LC	2,000	800	1.630 x 28.5 x 28.5	11153

Machine lights

Series ML-x-LK/ML-x-LKF

The machine lights series **ML-x-LK** and **ML-x-LKF** allows illumination with slim dimensions easy integration into machines or electrical cabinets without significantly restricting the space. A simple electrical installation directly to 24 V is implemented 3 m PVC/PVC cable or with M12 connector plug.

The 360° rotatable and robust aluminum housing of the series ML-x-LK allows for flexible orientation of lighting.

The bolttable aluminum housing with M6 allen screws of the series ML-x-LKF enables easy installation in industrial environment.

The maximum ambient operating temperature is 50° C.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Resistant to shock or vibration
- Remote control and dimming with switching signal (PWM)
- Robust aluminium housing
- Integrated overvoltage and temperature protection
- 360° rotatable, slim round housing (Serie ML-x-LK)
- Robust, slim and bolttable aluminium housing (Serie ML-x-LKF)
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra≥90
- Polycarbonat front lens
- IP 54 protection class, protection class 3

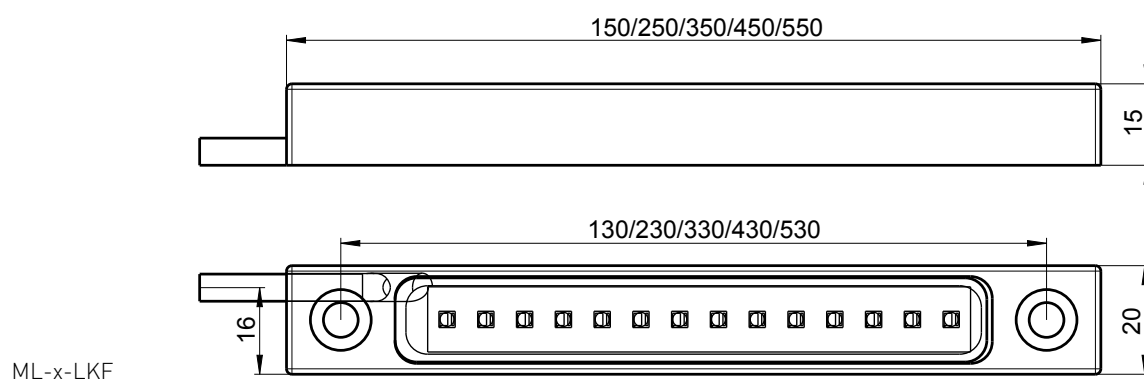
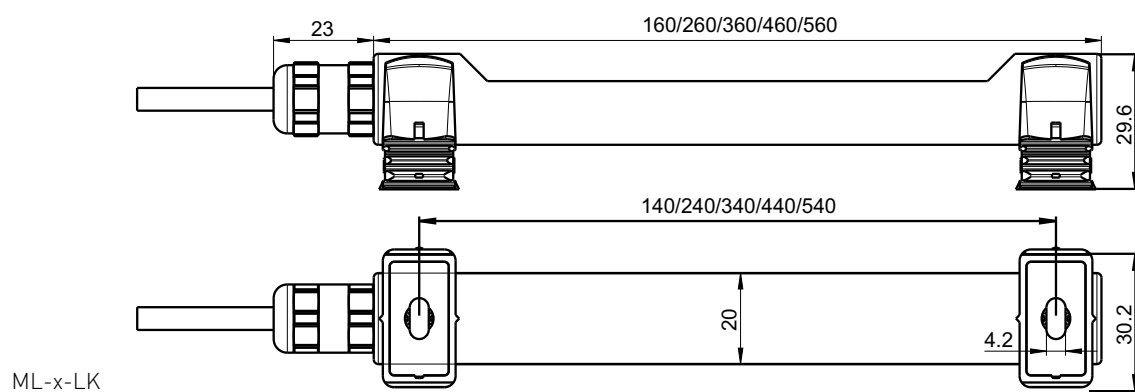


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions Ø x L (mm)	Part no.
Version with 3 m PVC/PVC cable or M12 connector				
ML-3-LK LC/ML-3-LK M12	135	100	D20 x 160	10241 / 10278
ML-6-LK LC/ML-6-LK M12	270	200	D20 x 260	10240 / 10279
ML-9-LK LC/ML-9-LK M12	400	300	D20 x 360	10242 / 10280
ML-12-LK LC/ML-12-LK M12	540	380	D20 x 460	10243 / 10281
ML-15-LK LC/ML-15-LK M12	675	470	D20 x 560	10244 / 10282

ACCESSORIES OPTIONAL

- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/TN-72-M12
- Extensions V-M12

(Look at accessories page 67, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x B x H (mm)	Part no.
Version with 3 m PVC/PVC cable or M12 connector  				
ML-3-LKF LC/ML-3-LKF M12	135	100	150 x 20 x 15	10303/10645
ML-6-LKF LC/ML-6-LKF M12	270	200	250 x 20 x 15	10304/10545
ML-9-LKF LC/ML-9-LKF M12	400	300	350 x 20 x 15	10305/10527
ML-12-LKF LC/ML-12-LKF M12	540	380	450 x 20 x 15	10302/10644
ML-15-LKF LC/ML-15-LKF M12	675	470	550 x 20 x 15	10306/10528

Machine lights

Series ML-x

The **ML-x** machine light series is a superior-quality 24 V LED lighting solution for sophisticated industrial applications.

A thermally optimized LED electronic unit is cooled in a 40 mm aluminium profile housing, ensuring a long service life. Embedding the electronics in a transparent UV-resistant PUR casting protects the machine lights against environmental influences, moisture and numerous chemicals (lyes, acids and oil).

This machine light design enables simple wall mounting with a glare-free light emission parallel to the mounting surface. The mounting angle kit ML-W2 (see accessories), with offset holes, enables the realisation of flush mounting on 40 mm profile systems.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Connection with M12 connector plug/250 mm PUR/PVC cable or 5 m PUR/PVC cable with open end
- Remote control with 24 V signal
- Dimming with PWM signal
- Resistant to shock or vibration
- Compact, robust design
- Robust aluminium housing
- Integrated overvoltage and temperature protection
- Adjustable slot nuts M6
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra≥90
- IP 68 protection class, protection class 3



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
ML-6 M12	270	230	200 x 40 x 40	M12 connector	10207
ML-12 M12	540	460	370 x 40 x 40	M12 connector	10206
ML-18 M12	800	600	540 x 40 x 40	M12 connector	10213
ML-24 M12	1,100	900	540 x 40 x 40	M12 connector	10247

ACCESSORIES OPTIONAL

- Magnet holder ML-M-90
- Mounting angle kit ML-W2
- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/
TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

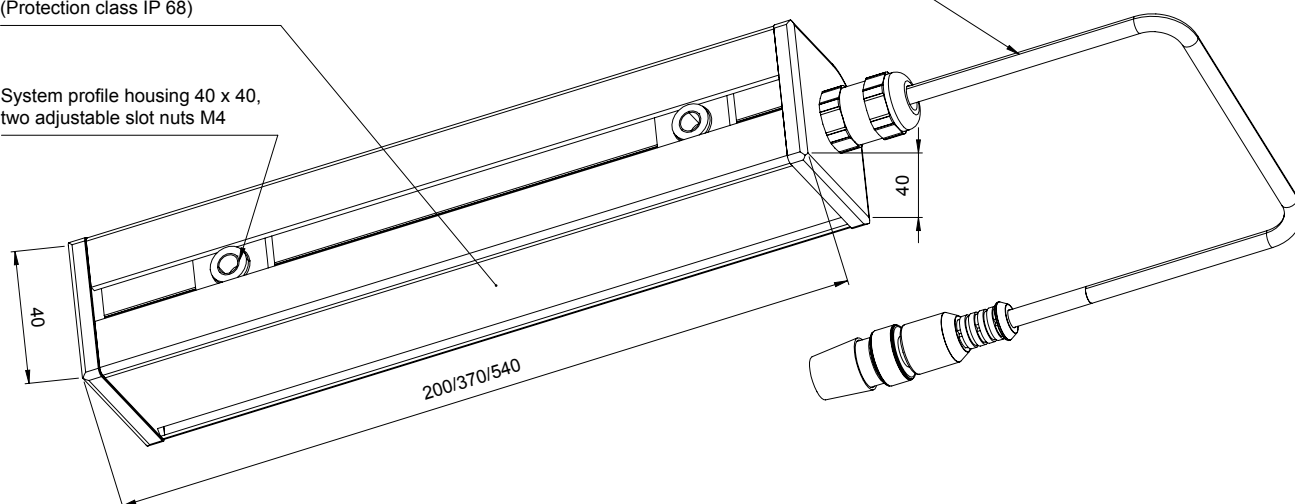
(Look at accessories page 67, 68, 71, 72)



Completely hermetically casted
(Protection class IP 68)

System profile housing 40 x 40,
two adjustable slot nuts M4

PUR/PVC cable with M12 connector
*LC types PUR/PVC cable 5 m with open end



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
ML-6 LC	270	230	200 x 40 x 40	5 m PUR/PVC	10275
ML-12 LC	540	460	370 x 40 x 40	5 m PUR/PVC	10264
ML-18 LC	800	600	540 x 40 x 40	5 m PUR/PVC	10265
ML-24 LC	1,100	900	540 x 40 x 40	5 m PUR/PVC	10269

Machine lights

Series ML-x-45

The **ML-x-45** machine light series is a superior-quality 24 V LED lighting solution for sophisticated industrial applications.

A thermally optimized LED electronic unit is cooled in a 40 mm aluminium profile housing, ensuring a long service life.

Embedding the electronics in a transparent UV-resistant PUR casting protects the machine lights against environmental influences, moisture and numerous chemicals (lyes, acids and oil).

This LED machine light series is ideally suitable for space-saving and glare-free corner mounting. The mounting angle kit ML-W1 (see accessories), with offset holes, enables the realisation of flush mounting on 40 mm profile systems.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Connection with M12 connector plug/250 mm PUR/PVC cable or 5 m PUR/PVC cable with open end
- Remote control with 24 V signal
- Dimming with PWM signal
- Resistant to shock or vibration
- Compact, robust design
- Robust aluminium housing
- Integrated overvoltage and temperature protection
- 2x slot nuts M6 are included
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra≥90
- IP 68 protection class, protection class 3



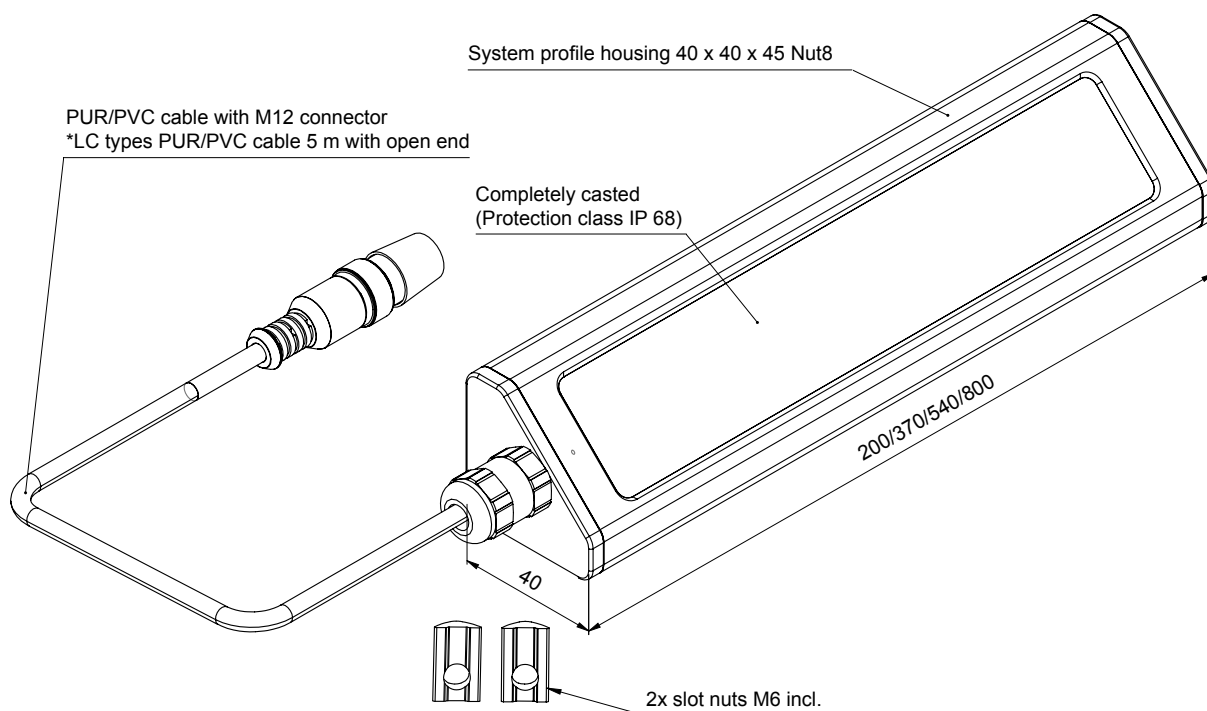
System
profile
housing
40 mm

Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
ML-6-45 M12	270	230	200 x 40 x 40	M12 connector	10204
ML-12-45 M12	540	460	370 x 40 x 40	M12 connector	10205
ML-18-45 M12	800	600	540 x 40 x 40	M12 connector	10214
ML-24-45 M12	1,100	900	540 x 40 x 40	M12 connector	10250
ML-36-45 M12	1,600	1,100	800 x 40 x 40	M12 connector	10292

ACCESSORIES OPTIONAL

- Magnet holder ML-M-45
- Mounting angle kit ML-W1
- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/
TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 67, 68, 71, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
ML-6-45 LC	270	230	200 x 40 x 40	5 m PUR/PVC	10276
ML-12-45 LC	540	460	370 x 40 x 40	5 m PUR/PVC	10263
ML-18-45 LC	800	600	540 x 40 x 40	5 m PUR/PVC	10266
ML-24-45 LC	1,100	900	540 x 40 x 40	5 m PUR/PVC	10270
ML-36-45 LC	1,600	1,100	800 x 40 x 40	5 m PUR/PVC	10498

Machine lights

Series ML-x-UF

The **ML-x-UF** machine light series is a superior-quality 24 V LED lighting solution for sophisticated industrial applications.

A thermally optimized LED electronic unit is cooled in a 40 mm aluminium profile housing, ensuring a long service life.

Embedding the electronics in a transparent UV-resistant PUR casting protects the machine lights against environmental influences, moisture and numerous chemicals (lyes, acids and oil).

This series are especially suitable due to the low height of 10 mm for applications with limited space.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Connection with M12 connector plug/250 mm PUR/PVC cable or 5 m PUR/PVC cable with open end
- Powerless remote control with 24 V signal
- Dimming with PWM signal
- Resistant to shock or vibration
- Compact, robust and particularly flat design
- Robust aluminium housing
- Fixing with 2x hexagonal socket head screws M6/DIN 912
- Integrated overvoltage and temperature protection
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra ≥ 90
- IP 68 protection class, Protection class 3

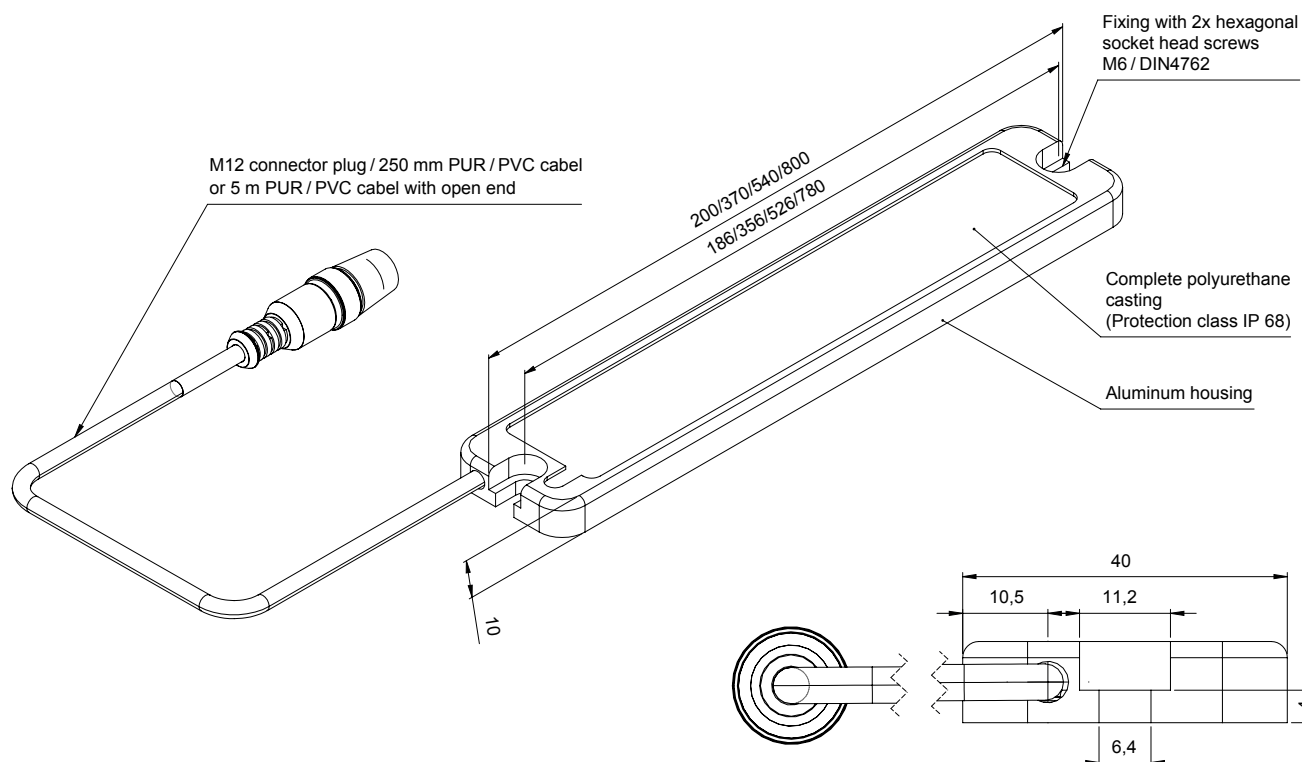


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
ML-6-UF M12	270	230	200 x 40 x 10	M12 connector	10232
ML-12-UF M12	540	460	370 x 40 x 10	M12 connector	10233
ML-18-UF M12	800	600	540 x 40 x 10	M12 connector	10234
ML-24-UF M12	1,100	900	540 x 40 x 10	M12 connector	10249
ML-36-UF M12	1,600	1,100	800 x 40 x 10	M12 connector	10293

ACCESSORIES OPTIONAL

- Magnet holder ML-M-UF
- Rotary attachment WML-D
- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 68, 69, 71, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
ML-6-UF LC	270	230	200 x 40 x 10	5 m PUR/PVC	10259
ML-12-UF LC	540	460	370 x 40 x 10	5 m PUR/PVC	10258
ML-18-UF LC	800	600	540 x 40 x 10	5 m PUR/PVC	10268
ML-24-UF LC	1,100	900	540 x 40 x 10	5 m PUR/PVC	10272
ML-36-UF LC	1,600	1,100	800 x 40 x 10	5 m PUR/PVC	10580

Machine lights

Series ML-x-20

The **ML-x-20** machine light series is a high-quality 24 V LED lighting solution for sophisticated industrial applications.

The integrated, inclined LED module enables **ceiling mounting with LED integrated glare control**, or dimmed peripheral illumination can be achieved with wall mountings.

A thermally optimized LED electronic unit is cooled in a 40 mm aluminium profile housing, ensuring a long service life.

Embedding the electronics in a transparent UV-resistant PUR casting protects the machine lights against environmental influences, moisture and numerous chemicals (lyes, acids and oil).

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Integrated cut-off angle 20°
- Connection with M12 connector plug / 250 mm PUR / PVC cable or 5 m PUR / PVC cable with open end
- Lateral or rear cable outlet
- Remote control with 24 V signal
- Dimming with PWM signal
- Resistant to shock or vibration
- Compact, robust and flat design
- Flat aluminium housing
- Fixing with 2x hexagonal socket head screws M6 / DIN 912
- Integrated overvoltage and temperature protection
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra ≥ 90
- IP 68 protection class, protection class 3

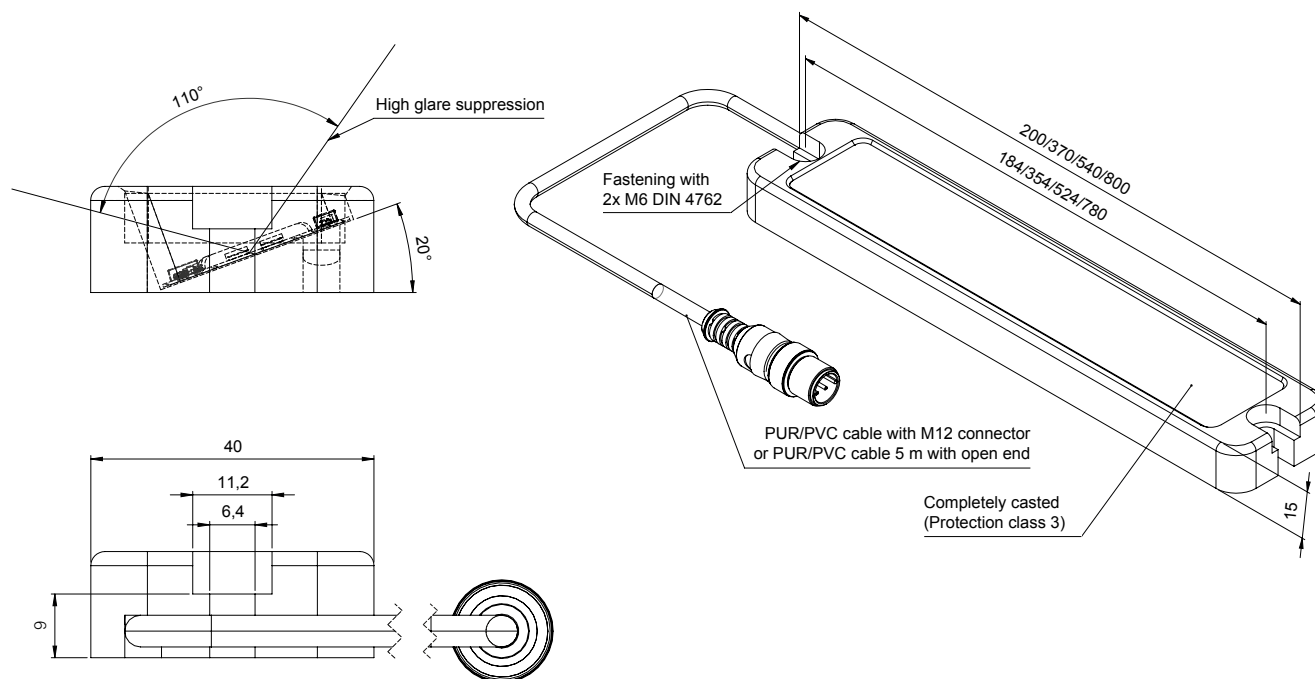


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
ML-6-20 M12	270	230	200 x 40 x 15	M12 connector	10221
ML-12-20 M12	540	460	370 x 40 x 15	M12 connector	10219
ML-18-20 M12	800	600	540 x 40 x 15	M12 connector	10220
ML-24-20 M12	1,100	900	540 x 40 x 15	M12 connector	10251
ML-36-20 M12	1,600	1,100	800 x 40 x 15	M12 connector	10294

ACCESSORIES OPTIONAL

- Magnet holder ML-M-20
- Power supply SN-12-M12/SN-24-M12
- Desktop power supply TN-36-M12/TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 68, 71, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
ML-6-20 LC	270	230	200 x 40 x 15	5 m PUR/PVC	10262
ML-12-20 LC	540	460	370 x 40 x 15	5 m PUR/PVC	10226
ML-18-20 LC	800	600	540 x 40 x 15	5 m PUR/PVC	10260
ML-24-20 LC	1,100	900	540 x 40 x 15	5 m PUR/PVC	10261
ML-36-20 LC	1,600	1,100	800 x 40 x 15	5 m PUR/PVC	10639

Machine lights

Series ML-3-F / ML-3-R

A thermally optimized LED electronic unit is cooled by a 40 mm aluminium housing, ensuring a long service life.

Embedding the electronics in a transparent UV-resistant PUR casting protects the machine lights against environmental influences, moisture and numerous chemicals (lyes, acids and oil).

ACCESSORIES OPTIONAL

- Power supply SN-12-M12
- Extensions V-M12

(Look at accessories page 67, 72)

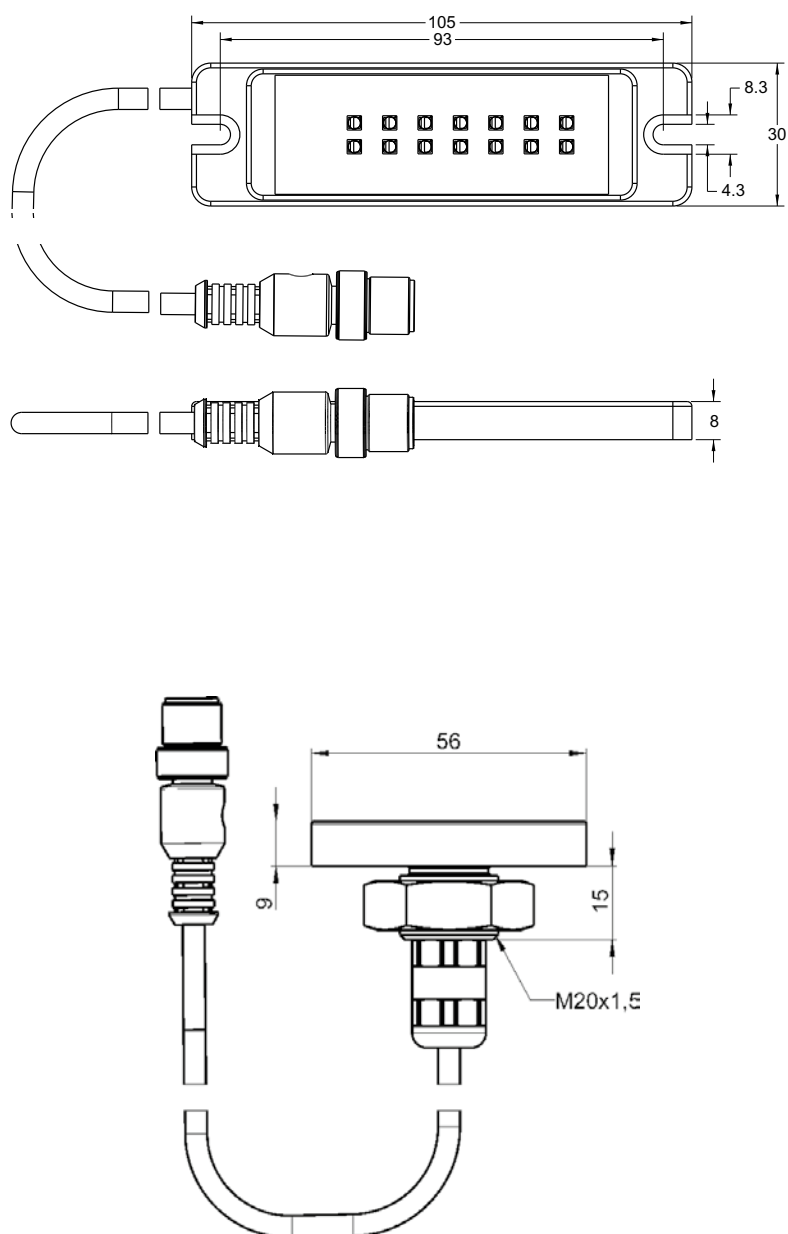


TECHNICAL DATA

- Operating voltage 21–27 V DC
- Connection with M12 connector plug/250 mm PUR/PVC cable or 3 m PUR/PVC cable (LC design)
- Remote control and dimming with 24 V switching signal (PWM)
- Resistant to shock or vibration
- Compact, robust and flat design
- Fixing with 2x allen screws, Hexagon socket M4/DIN 912, reverse side M20 x 1,5
- Integrated overvoltage and temperature protection
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra≥90
- IP 68 protection class, protection class 3



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable or M12 connector					
ML-3-F LC	150	100	105 x 30 x 8	3 m PVC/PVC	10273
ML-3-F M12	150	100	105 x 30 x 8	M12 connector	10227



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions Ø x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable or M12 connector  					
ML-3-R LC	150	100	56 x 21	3 m PVC/PVC	10274
ML-3-R M12	150	100	56 x 21	M12 connector	10229

Machine lights

Series ML-x-Spot

The spot lights **ML-x-Spot** allow with low size and robust design a spot-like illumination in harsh industrial environments. With fully encapsulated electronics unit and an impact resistant windshield the LED spots are protected from influences in industrial environments. The spot lights achieves protection class IP 65.

By using a system profile housing with the types ML-5-Spot and ML-10 Spot an easy and flexible installation with slot nuts is possible.

The spot lights have a beam angle of 20° and radiate a directional homogeneous and flicker-free light in daylight quality to an object. Because the optical focusing, the working distance can be increased, so that the lights do not restrict the working space. With the flexible metal hose (types **ML-10-x**) the light cone can be aligned accurately.



ACCESSORIES OPTIONAL

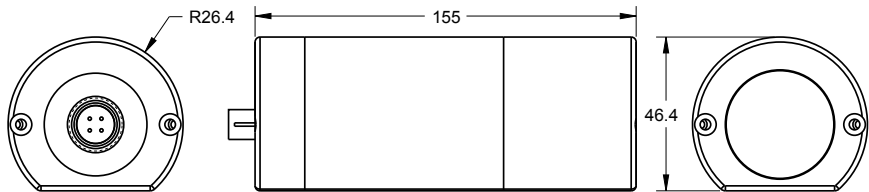
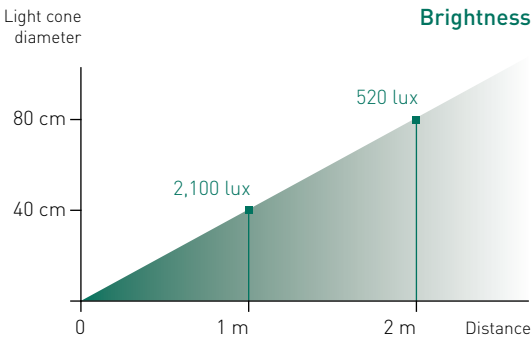
- Power supply SN-12-M12
- Extensions V-M12

(Look at accessories page 67, 72)



TECHNICAL DATA

- Operating voltage 16–30 V DC
- Connection with M12 connector plug
- Flexible metal hose, 250 mm, 450 mm or 650 mm (ML-x-250, ML-x-450, ML-x-650)
- Montage with slot nuts (slot nuts M6 enclosed) (ML-x-Spot)
- Remote control and dimming with 24 V switching signal (PWM)
- Robust anodized aluminium housing
- Resistant to impacting and vibration
- Impact resistant polycarbonat front lens
- Integrated overvoltage and temperature protection
- Color temperature 5,700 K
- IP 65 protection class, protection class 3



Type	Power consumption (A)	Illuminance (lux) 1 m	Connection	Part no.
Version with M12 connector 				
ML-10-Spot	0.4	2,100	M12 connector	10605

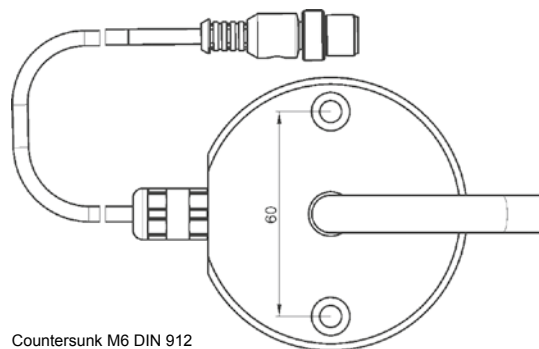
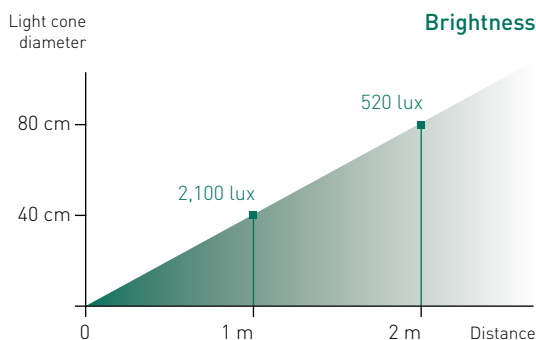
Machine lights

Series ML-10-x

ACCESSORIES OPTIONAL

- Magnet holder AL-6-M
- Table clamp ML-KL
- Power supply SN-12-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 67, 68, 71, 72)



Type	Power consumption (A)	Illuminance (lux) 1 m	Connection	Part no.
Version with M12 connector 				
ML-10-250	0,4	2,100	M12 connector	10237
ML-10-450	0,4	2,100	M12 connector	10238
ML-10-650	0,4	2,100	M12 connector	10877

Stainless steel machine lights

Series ML-x-UFE

Production plants that manufacture food-stuffs, as well as laboratory facilities in the chemical and pharmaceutical industries, are required to meet special criteria when it comes to the equipment they use. High standards of hygiene reduce or prevent health risks for end consumers and employees.

The stainless steel machine lights **ML-x-UFE** are completely encapsulated in crystal clear casting to eliminate the possibility of foreign media penetrating into them. The housing for the lights is manufactured out of solid, electropolished stainless steel that guarantees a high level of resistance to chemicals and abrasion. In order to increase the chemical resistance, it is possible to select the series **ML-x-UFGE** featuring a hardened glass cover on the front. The rear installation of the lights means that the easy-to-clean front section does not contain any drilled holes and seams on which residues could accumulate.

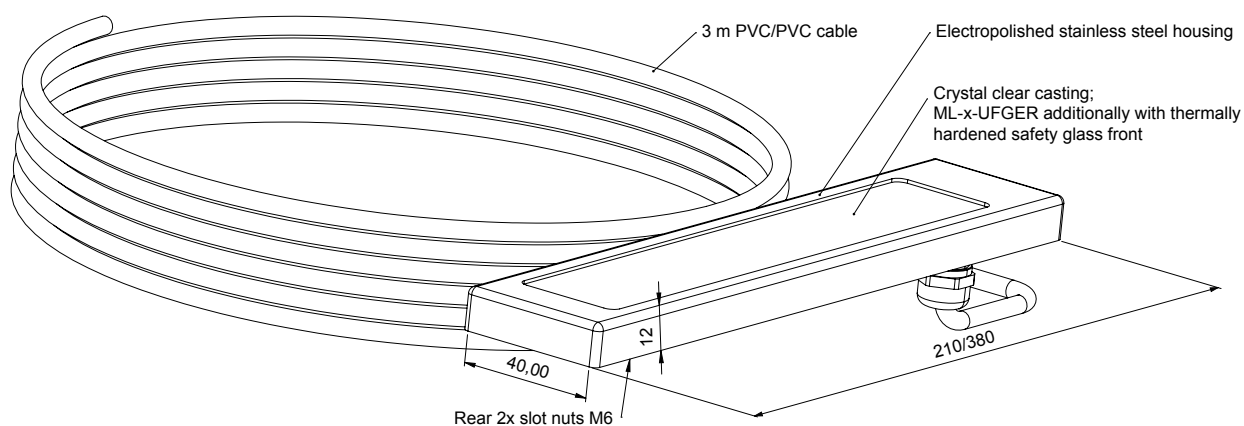
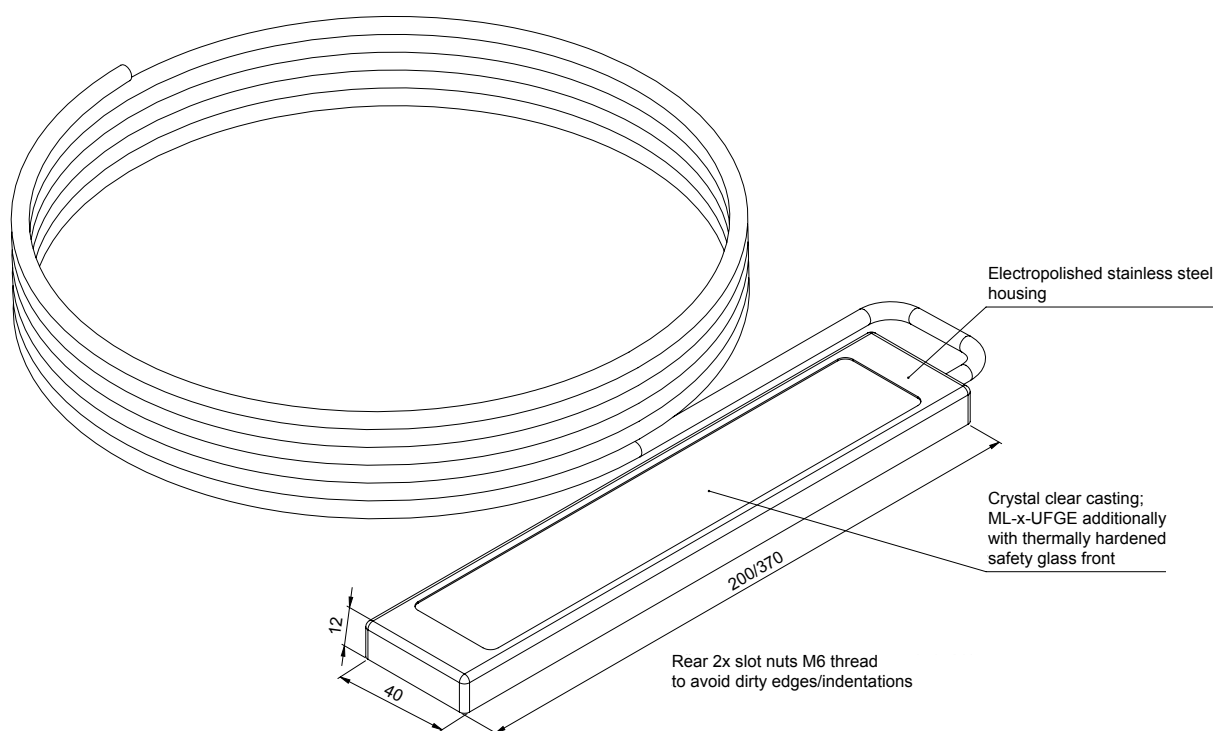
As a result of the particularly flat design, the lights require little installation space and deliver effective lighting for environments with high hygienic standards.

TECHNICAL DATA

- Operating voltage 21-27 V DC
- 3 m PVC cable with open end
- Powerless remote control with 24 V signal
- Dimming with PWM signal
- Resistant to shock or vibration
- Compact, robust and particularly flat design
- Electropolished stainless steel housing
- Fixing on rear with M6 thread
- Integrated overvoltage and temperature protection
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra≥90
- IP 68 protection class (ML-x-UFE), protection class 3
- IP 68/IP 69 K protection class (ML-x-UFGE), protection class 3



Typ	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version completely encapsulated, with 3 m PVC/PVC cable					
ML-6-UFE LC	270	230	200 x 40 x 12	3 m PVC/PVC	10637
ML-12-UFE LC	540	460	370 x 40 x 12	3 m PVC/PVC	10286
Version completely encapsulated and hardened glass cover, with 3 m PVC/PVC cable					
ML-6-UFGE LC	270	210	200 x 40 x 12	3 m PVC/PVC	10872
ML-12-UFGE LC	540	420	370 x 40 x 12	3 m PVC/PVC	10577



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version completely encapsulated, with 3 m PVC/PVC cable 					
ML-6-UFER LC	270	230	210 x 40 x 12	3 m PVC/PVC	11155
ML-12-UFER LC	540	460	380 x 40 x 12	3 m PVC/PVC	11157
Version completely encapsulated and hardened glass cover, with 3 m PVC/PVC cable 					
ML-6-UFGER LC	270	230	210 x 40 x 12	3 m PVC/PVC	11156
ML-12-UFGER LC	540	460	380 x 40 x 12	3 m PVC/PVC	11158

Machine lights/Machine tool lights

Series ML-x-P/WML-x-P

The machine light series **ML-x-P/WML-x-P** allows with very compact dimensions easy and spaces saving integration in significantly restricting machines or tooling machines. With M12 connector plug systems a simple electrical installation directly to 24 V DC is possible.

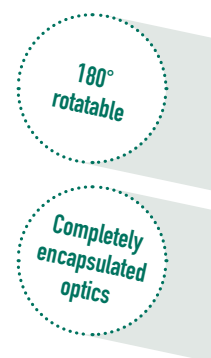
With a **rotatable and robust aluminum housing**, the impact-resistant polycarbonate windscreen (ML-X-P) or thermally hardened safety glass (WML x-P), the LED light is protected against mechanical environmental influences and numerous chemicals as alkalis, acids and oils.

The highly efficient LEDs – in combination with the **fine prismatic glare suppression** – produce a wide beam angle of 100° and a flicker-free light in the usual daylight quality.

The series ML-x-P and WML-x-P are each in four power-sizes available. The series WML-x-P is designed for the machine tool industry and has a stainless steel front protection and a thermally hardened safety glass optics.

TECHNICAL DATA

- Operating voltage 21.5-27 V DC
- Connection with M12 connector plug
- Remote control and dimming with switching signal (PWM)
- Robust, rotatable aluminium housing
- Fine prismatic front glass for glare suppression
- Impact resistant polycarbonat front lens (ML-x-P)
- Thermally hardened safety glass front lens stainless steel front protection (WML-x-P)
- Integrated overvoltage and temperature protection
- Max. ambient temperature 50° C
- Color temperature 5,700 K, Ra≥90, beam angle 100°
- IP 68/IP 69 K protection class, protection class 3

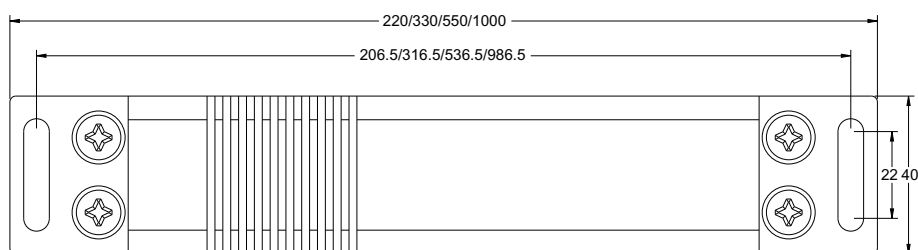
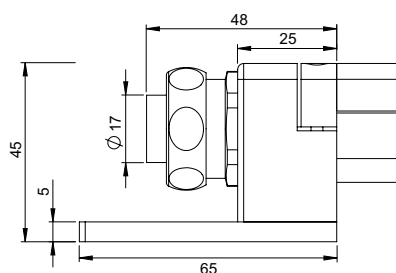


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Anschluss	Part no.
Version with M12 connector 					
ML-7-P	300	220	190 x 40 x 40	M12 connector	10598
ML-14-P	600	450	300 x 40 x 40	M12 connector	10599
ML-28-P	1,200	880	520 x 40 x 40	M12 connector	10600
ML-56-P	2,400	1,350	970 x 40 x 40	M12 connector	10601

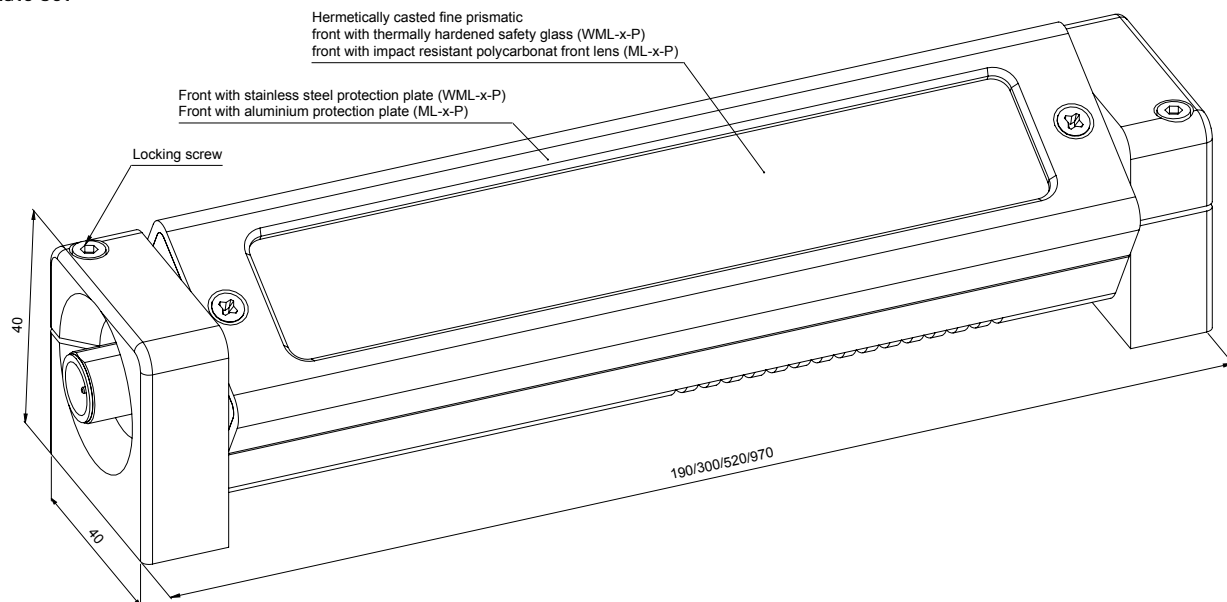
ACCESSORIES OPTIONAL

- Foot plate set ML-x-P-FS
- Foot plate set WML-x-P-FSSA
- Protective sleeve adapter WML-x-P-SSA (M20 x 1,5)
- Protective sleeve WML-P-SS
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 67, 70, 71)



With protective sleeve adapter
and foot plate set



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
WML-7-P	300	220	190 x 40 x 40	M12 connector	10640
WML-14-P	600	450	300 x 40 x 40	M12 connector	10641
WML-28-P	1,200	880	520 x 40 x 40	M12 connector	10642
WML-56-P	2,400	1,350	970 x 40 x 40	M12 connector	10643

Machine tool lights

Series WML-x-UF

The machine tool lights series **WML-x-UF** allows illumination with compact dimensions an easy integration into machines and cutting machines without significantly restricting the space.

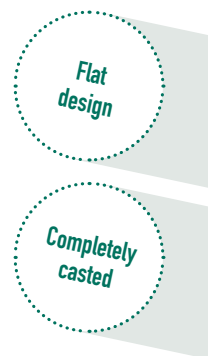
The robust **aluminum housing with stainless steel protection plate** and a **thermally hardened glass front** protects the lamp against a lot of chemicals such as alkalis, acids and oils and hot chippings in machine tools. The lights are completely casted with a transparent PUR encapsulation which prevents infiltration of oil or other liquids.

The LED-lamps generate a flicker-free illumination in daylight quality with an beam angle 110°.

The series WML-x-UF is available in five power sizes types. The electrical installation can plugged with M12 connector or with 5 m PUR/PVC cable with open end. These lights with the **flat construction** are particularly suitable for space-saving applications.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Connection with M12 connector plug/250 mm PUR/PVC cabel or 5 m PUR/PVC cabel with open end
- Remote control and dimming with switching signal (PWM)
- Resistant to impacting or vibration
- Thermally hardened glass front
- Robust aluminum housing with stainless steel protection plate
- Completely casted with a transparent PUR encapsulation
- Integrated overvoltage and temperature protection
- Compact, particularly flat design
- Flicker-free illumination in daylight quality, color temperature 5,700 K, Ra≥90
- Max. ambient temperature 50° C
- IP 68/IP 69 K protection class (DIN 40050-9:1993), protection class 3

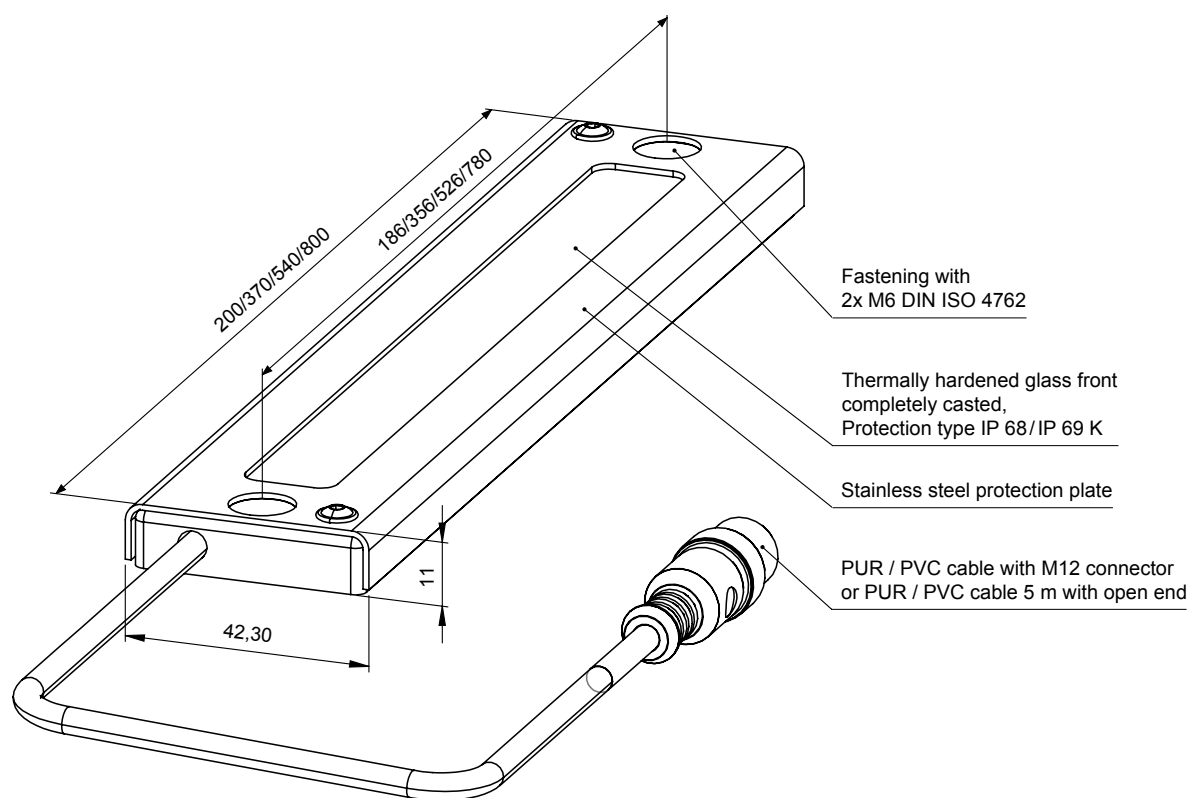


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
WML-6-UF M12	270	230	200 x 42,3 x 11	M12 connector	10296
WML-12-UF M12	540	460	370 x 42,3 x 11	M12 connector	10287
WML-18-UF M12	800	600	540 x 42,3 x 11	M12 connector	10283
WML-24-UF M12	1,100	900	540 x 42,3 x 11	M12 connector	10284
WML-36-UF M12	1,600	1.100	800 x 42,3 x 11	M12 connector	10295

ACCESSORIES OPTIONAL

- Magnet holder ML-M-UF
- Rotary attachment set WML-D
- Power supply SN-12-M12/SN-24-M12
- Desktop power supply M12 TN-36-M12/
TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 68, 69, 71, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
WML-6-UF LC	270	230	200 x 42,3 x 11	5 m PUR/PVC	10300
WML-12-UF LC	540	460	370 x 42,3 x 11	5 m PUR/PVC	10299
WML-18-UF LC	800	600	540 x 42,3 x 11	5 m PUR/PVC	10288
WML-24-UF LC	1,100	900	540 x 42,3 x 11	5 m PUR/PVC	10289
WML-36-UF LC	1,600	1.100	800 x 42,3 x 11	5 m PUR/PVC	10301

Machine tool lights

Series WML-x-UFR

The compact dimensions of the machine tools series **WML-x-UFR** allow an easy integration into machines and cutting machines without significantly restricting the space. On account of the cable outlet on the reverse in combination with the flat construction of the housing a bigger cutting in the metal plate is no longer necessary.

The **robust aluminum housing with stainless steel protection plate** and a **thermally hardened glass front** protect the lamp against a lot of chemicals such as alkalis, acids, oils and hot chippings in machine tools. The lights are completely casted.

The machine tool lights of the series WML-x-UFR are available with either M12 connector or with 5 m PUR/PVC cable with open end (*LC version).

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Light color daylight white
- Color temperature 5,700 K
- Color rendering index Ra≥90
- Max. ambient temperature 50° C
- IP 68/IP 69 K protection class, protection class 3



Flat design

Reverse side cable outlet

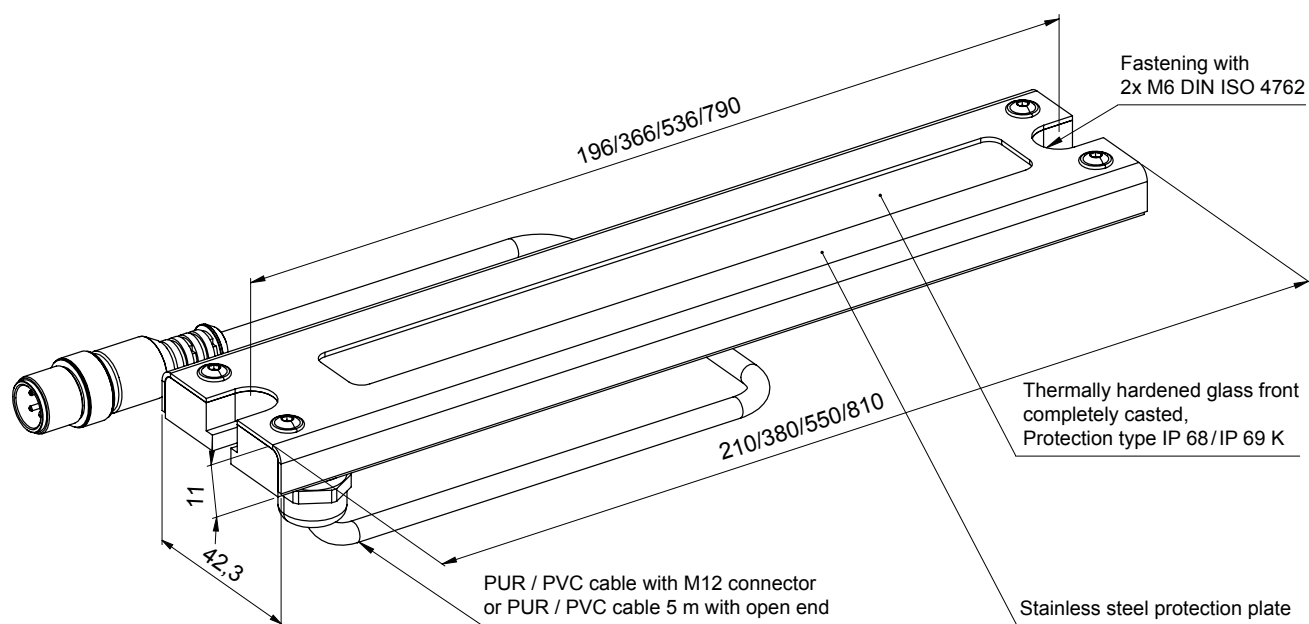
Completely casted

Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
WML-6-UFR M12	270	230	210 x 42,3 x 11	M12 connector	11179
WML-12-UFR M12	540	460	380 x 42,3 x 11	M12 connector	11181
WML-18-UFR M12	800	600	550 x 42,3 x 11	M12 connector	11183
WML-24-UFR M12	1,100	900	550 x 42,3 x 11	M12 connector	11185
WML-36-UFR M12	1,600	1,100	810 x 42,3 x 11	M12 connector	11187

ACCESSORIES OPTIONAL

- Power supply SN-12-M12/SN-24-M12
- Desktop power supply M12 TN-36-M12/ TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 67, 71, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
WML-6-UFR LC	270	230	210 x 42,3 x 11	5 m PUR/PVC	11180
WML-12-UFR LC	540	460	380 x 42,3 x 11	5 m PUR/PVC	11182
WML-18-UFR LC	800	600	550 x 42,3 x 11	5 m PUR/PVC	11184
WML-24-UFR LC	1,100	900	550 x 42,3 x 11	5 m PUR/PVC	11186
WML-36-UFR LC	1,600	1,100	810 x 42,3 x 11	5 m PUR/PVC	11188

Machine tool lights

Series WML-x-20

The compact dimensions of the machine tools series **WML-x-20** allow an easy integration into machines and cutting machines without significantly restricting the space. On account of the **integrated cut-off angle 20°** in combination with the flat construction of the housing a bigger cutting in the metal plate is no longer necessary.

The robust aluminum housing with stainless steel protection plate and a thermally hardened glass front protect the lamp against a lot of chemicals such as alkalis, acids, oils and hot chippings in machine tools. The lights are completely casted.

The machine tool lights of the series WML-x-20 are available with either M12 connector or with 5 m PUR/PVC cable with open end (*LC version).

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Light color daylight white
- Color temperature 5,700 K
- Color rendering index $R_a \geq 90$
- Max. ambient temperature 50° C
- Integrated overvoltage, current and temperature protection
- Protection class 3
- IP 68/IP 69 K protection class, protection class 3

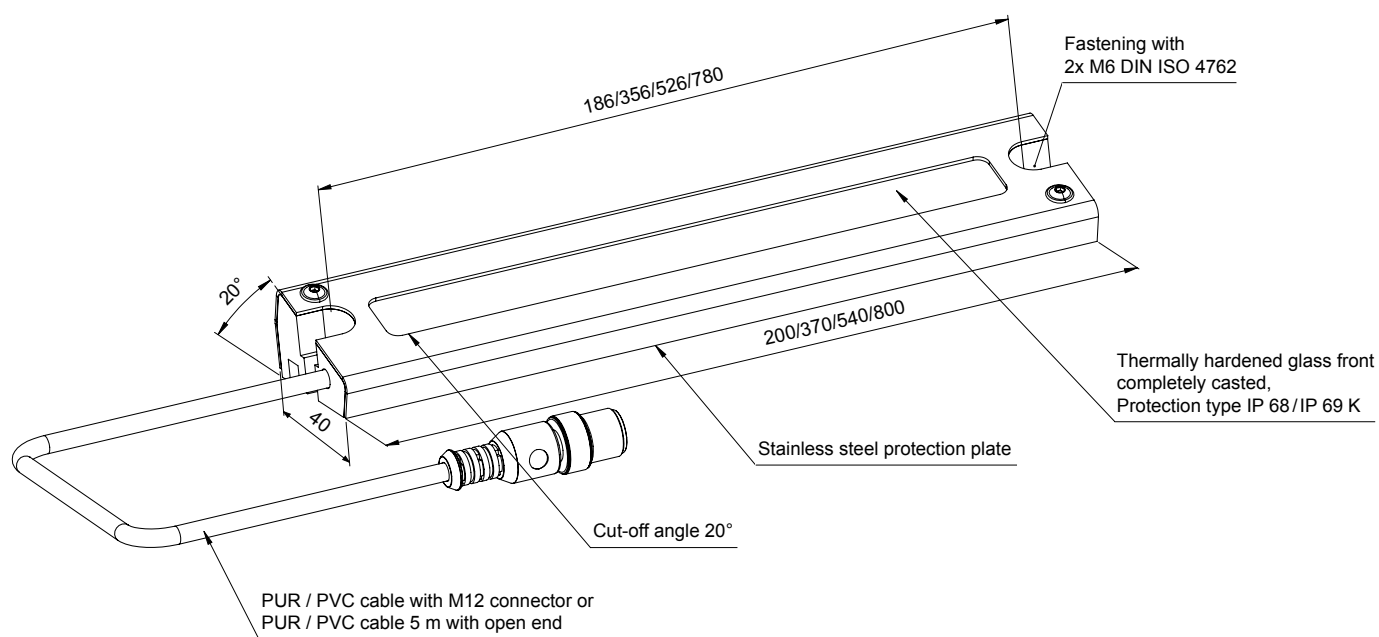


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
WML-6-20 M12	270	230	200 x 42,3 x 23	M12 connector	11159
WML-12-20 M12	540	460	370 x 42,3 x 23	M12 connector	11161
WML-18-20 M12	800	600	540 x 42,3 x 23	M12 connector	11163
WML-24-20 M12	1,100	900	540 x 42,3 x 23	M12 connector	11165
WML-36-20 M12	1,600	1,100	800 x 42,3 x 23	M12 connector	11167

ACCESSORIES OPTIONAL

- Power supply SN-12-M12/SN-24-M12
- Desktop power supply M12 TN-36-M12/
TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 67, 71, 72)



Type	Strom- aufnahme (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
WML-6-20 LC	270	230	200 x 42,3 x 23	5 m PUR/PVC	11160
WML-12-20 LC	540	460	370 x 42,3 x 23	5 m PUR/PVC	11162
WML-18-20 LC	800	600	540 x 42,3 x 23	5 m PUR/PVC	11164
WML-24-20 LC	1,100	900	540 x 42,3 x 23	5 m PUR/PVC	11166
WML-36-20 LC	1,600	1,100	800 x 42,3 x 23	5 m PUR/PVC	11168

Machine tool lights

Series WML-x-20R

The compact dimensions of the machine tools series **WML-x-20R** allow an easy integration into machines and cutting machines without significantly restricting the space. Due to the cable outlet on the reverse side in combination with the flat construction of the housing a bigger cutting in the metal plate is no longer necessary.

The robust **aluminum housing with stainless steel protection plate** and a **thermally hardened glass front** protect the lamp against a lot of chemicals such as alkalis, acids, oils and hot chippings in machine tools. The lights are completely casted.

The integrated, inclined LED module enables ceiling or wall mountings with **integrated blockage 20°**. The series WML-x-20R are available either with M12 connector or 5 m PUR/PVC cable with open end (*LC types).

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Light color daylight white
- Color temperature 5,700 K
- Color rendering index $R_a \geq 90$
- Max. ambient temperature 50° C
- Integrated overvoltage, current and temperature protection
- IP 68/IP 69 K protection class, protection class 3

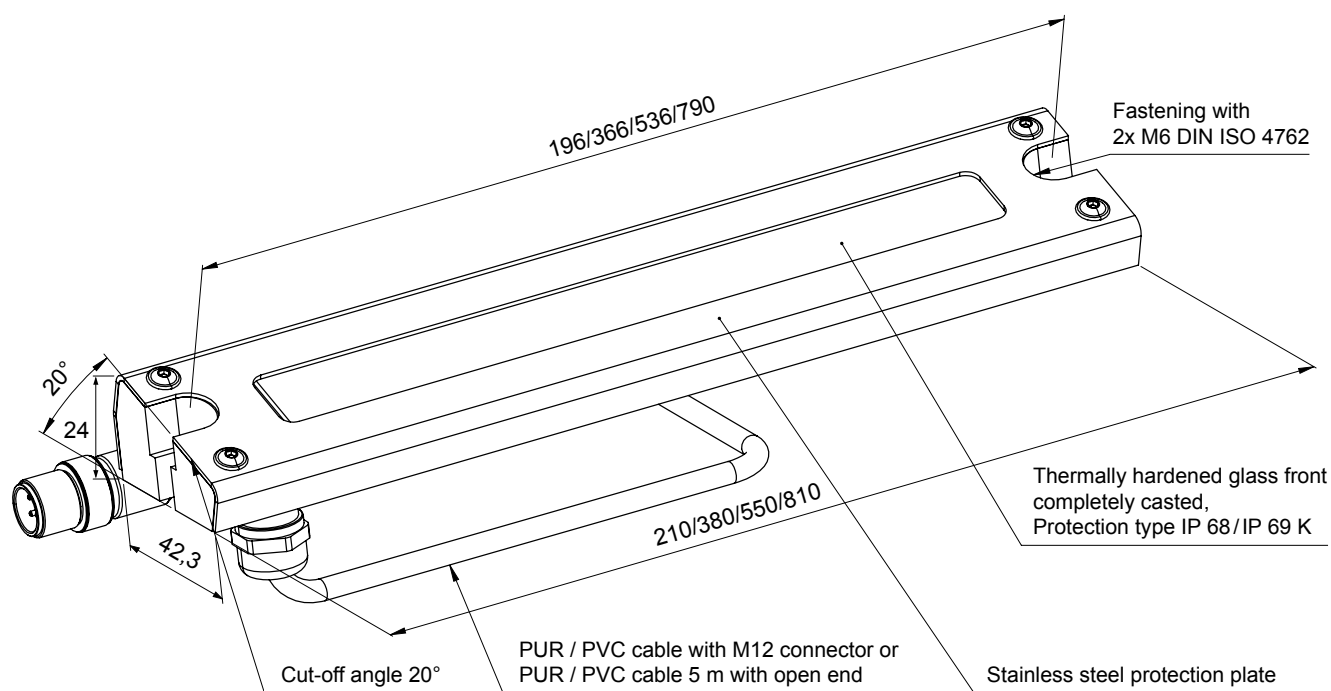


Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
WML-6-20R M12	270	230	210 x 42.3 x 24	M12 connector	11169
WML-12-20R M12	540	460	380 x 42.3 x 24	M12 connector	11171
WML-18-20R M12	800	600	550 x 42.3 x 24	M12 connector	11173
WML-24-20R M12	1,100	900	550 x 42.3 x 24	M12 connector	11175
WML-36-20R M12	1,600	1,100	810 x 42.3 x 24	M12 connector	11177

ACCESSORIES OPTIONAL

- Power supply SN-12-M12/SN-24-M12
- Desktop power supply M12 TN-36-M12/ TN-72-M12
- Extensions V-M12
- DIMM module ML-PWM

(Look at accessories page 67, 71, 72)



Type	Power consumption (mA)	Illuminance (lux) 1 m	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PUR/PVC cable 					
WML-6-20R LC	270	230	210 x 42.3 x 24	5 m PUR/PVC	11170
WML-12-20R LC	540	460	380 x 42.3 x 24	5 m PUR/PVC	11172
WML-18-20R LC	800	600	550 x 42.3 x 24	5 m PUR/PVC	11174
WML-24-20R LC	1,100	900	550 x 42.3 x 24	5 m PUR/PVC	11176
WML-36-20R LC	1,600	1,100	810 x 42.3 x 24	5 m PUR/PVC	11178

Workplace lights

Series AL-x-60-R

The Workplace and workshop lights of the series **AL-x-60-R** are universal **tube lights** made of **shock-resistant and shatterproof polycarbonate**. Due to the high degree of diffusion the light has a high glare suppression and a homogenous light-emitting surface. Since the lights can be rotated by 360 degrees it is quite easy to be positioned.

These tube lights are available whether with a supply voltage of 24 V DC or as a line voltage supply with 230 V AC. The connection is being realized via a M12 sensor connector plug or a Wieland connector plug RST16I2. The types of AL-x-60-RD have a feed-through wiring with two RST16i3 Wieland connector plugs (plug/jack) for chaining the lights.

There are five power classes of AL-x-60-R available.

TECHNICAL DATA

- Operating voltage 21–27 V DC, protection class 3, or 200–240 V AC/50Hz, protection class 2
- Light color daylight white
- Color temperature 5,700 K
- Color rendering index $R_a \geq 90$
- Complies with DIN EN C60598-2-24 for luminaires with limited surface temperatures
- Max. ambient temperature 40°C
- Integrated overvoltage, current and temperature protection
- IP 67 protection class



Type	Power consumption (V DC)	Rated power (W)	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
AL-9-60-R	24	9	400 x 70.3 x 79.6	M12 connector	11120
AL-18-60-R	24	18	700 x 770.3 x 79.6	M12 connector	11123
AL-27-60-R	24	27	1,000 x 70.3 x 79.6	M12 connector	11126
AL-36-60-R	24	36	1,300 x 70.3 x 79.6	M12 connector	11129
AL-45-60-R	24	45	1,600 x 70.3 x 79.6	M12 connector	11132

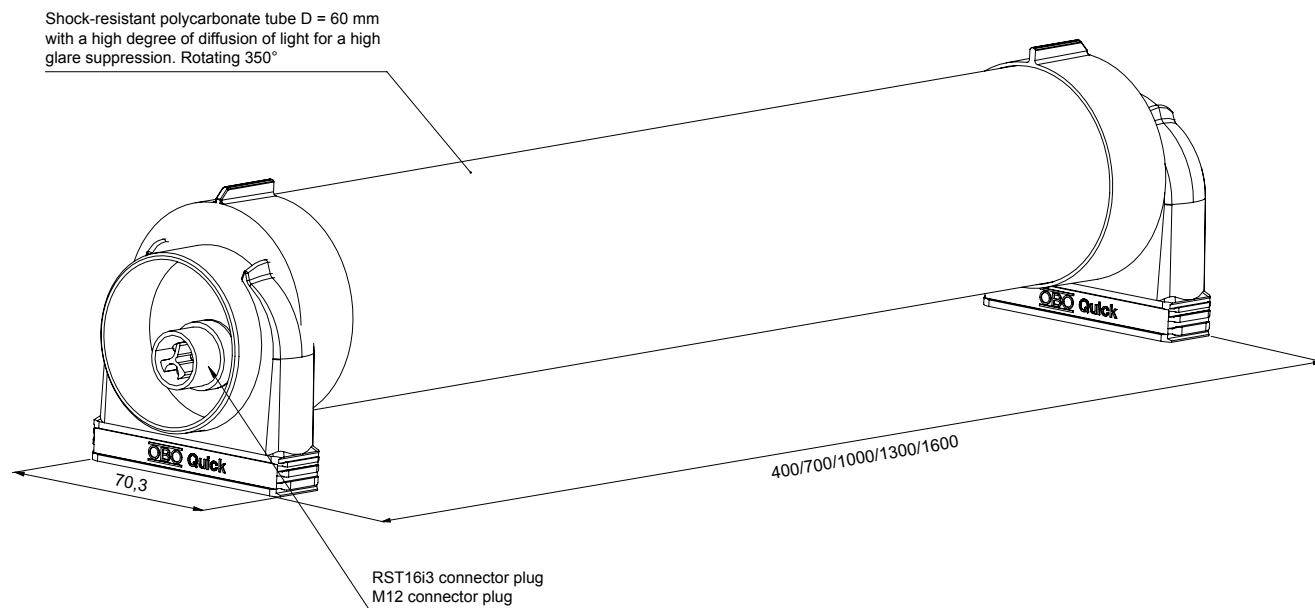
ACCESSORIES OPTIONAL

- Extensions V-M12 (24 V types)
- Connection cables RST16i3 (Wieland)

(Look at accessories page 66, 67)



 **wieland**



Type	Power consumption (V AC)	Rated power (W)	Dimensions L x W x H (mm)	Connection	Part no.
Version with RST16i3 					
AL-10-60-R / AL-10-60-RD	230	10	400 x 70.3 x 79.6	RST16i3	11121/11122
AL-20-60-R / AL-20-60-RD	230	20	700 x 70.3 x 79.6	RST16i3	11124/11125
AL-30-60-R / AL-30-60-RD	230	30	1,000 x 70.3 x 79.6	RST16i3	11127/11128
AL-40-60-R / AL-40-60-RD	230	40	1,300 x 70.3 x 79.6	RST16i3	11130/11131
AL-50-60-R / AL-50-60-RD	230	50	1,600 x 70.3 x 79.6	RST16i3	11133/11134

Workplace lights

Series AL-x-ERGO

AL-X-ERGO series workplace lamps designed for integration in industrial system workplaces. High lighting quality demands during assembly work and visual inspections require the use of **glare-free working light**, a **high light color rendering index (Ra)** for material colors, adjustable brightness and adjustable color temperature for fatigue-free working.

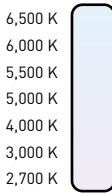
Sustainability is ensured through high-efficiency LEDs and durable components.



TECHNICAL DATA

- Operating voltage 230 V AC /50Hz
- Wieland GST18i3 connection systems
- 2x glare suppression
- Integrated dimming
- Adjustable light color 2,700–6,500 K
- Color rendering index Ra≥90
- Max. ambient temperature 40° C
- IP 40 protection class, protection class 1

Cold white



Warm white



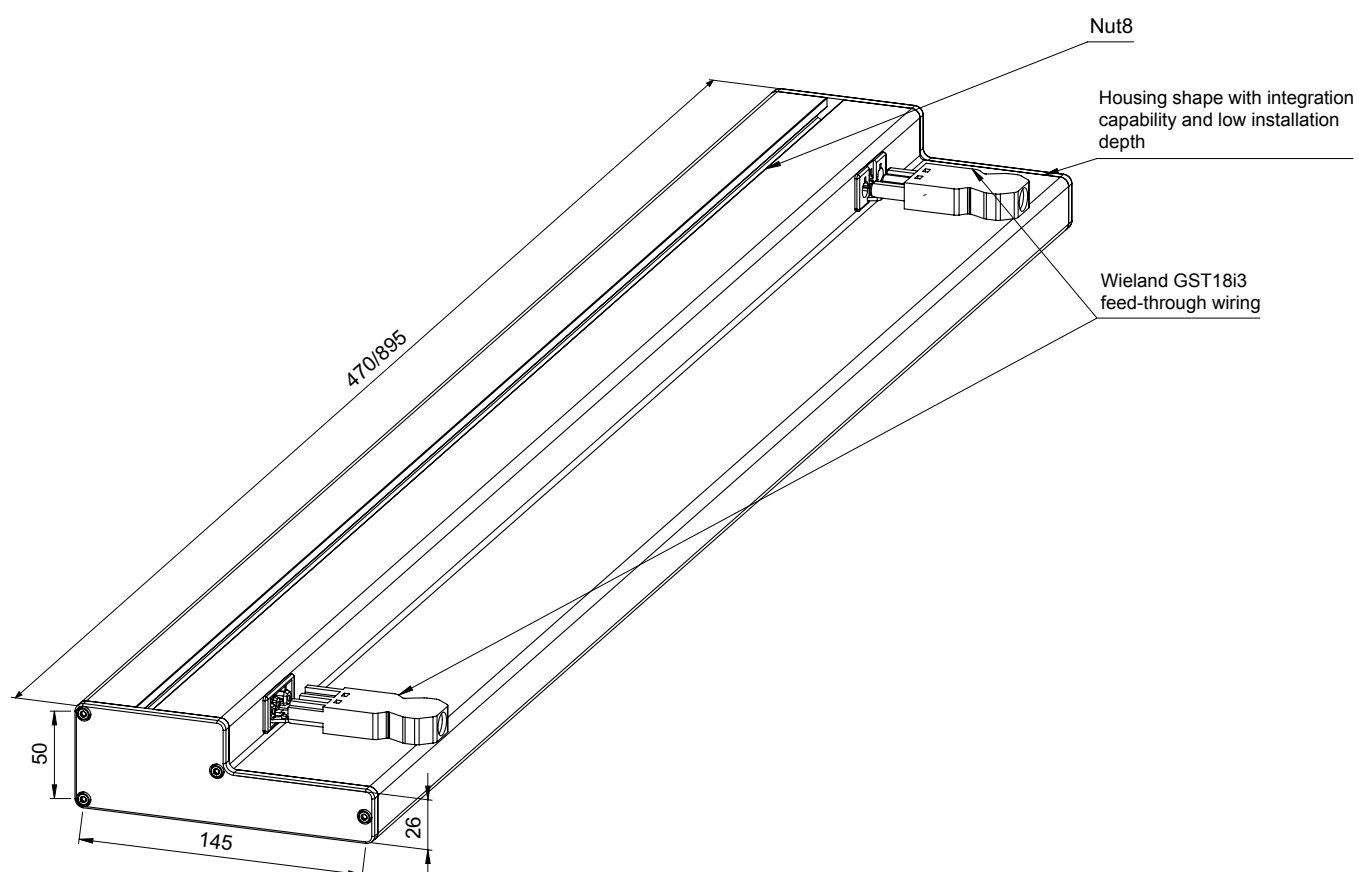
Typ	Power consumption (V AC)	Rated power (W)	Dimensions L x W x H (mm)	Connection	Part no.
Version with GST18i3 					
AL-30-ERGO	200–240	30	470 x 145 x 50	GST18i3	11356
AL-60-ERGO	180–264	60	895 x 145 x 50	GST18i3	11357

ACCESSORIES OPTIONAL

- Connection cables GST18i3 (Wieland)

(Look at accessories page 66)

 **wieland**



Workplace and machine lights

Series AL-x-S/AL-x-D

AL-x is intended for use in assembly workplaces and designed for machinery which does not use liquid coolants.

With the excellent energy efficiency of the latest LEDs and a long service life, these light systems enable you to achieve a high level of sustainability when compared to conventional lighting, thanks to low energy consumption and cost savings achieved through a maintenance-free system.

Flexible mounting options realized with adjustable slot nuts (slot 8) facilitate easy integration of the LED workplace light AL-x in system workplaces or machines. The integrated dimmer module enables optimum adaptation to the required lighting conditions.

TECHNICAL DATA

- Operating voltage 22–26 V DC
- Connection with M12 connector plug
- Max. ambient temperature 40° C
- Beam angle approx. 100°
- Remote control with 24 V signal (series AL-x-S)
- Dimming with membrane keys (series AL-x-D)
- ESD-safe full metal housing in system profile
- Fine prismatic front glass made out of shock-resistant polycarbonate for glare suppression
- Daylight quality, color temperature 5,700 K, Ra≥90
- IP 40 protection class, protection class 3



System
profile housing
40 x 80

24 V SELV

Type	Power consumption max. (A)	Illuminance (lux) 1 m	Connection	Part no.
Version with M12 connector 				
AL-24-S	0.9	700	M12 connector	10817
AL-48-S	1.8	1,200	M12 connector	10823
AL-72-S	2.7	1,800	M12 connector	10825
AL-96-S	3.6	2,200	M12 connector	10827

ACCESSORIES OPTIONAL

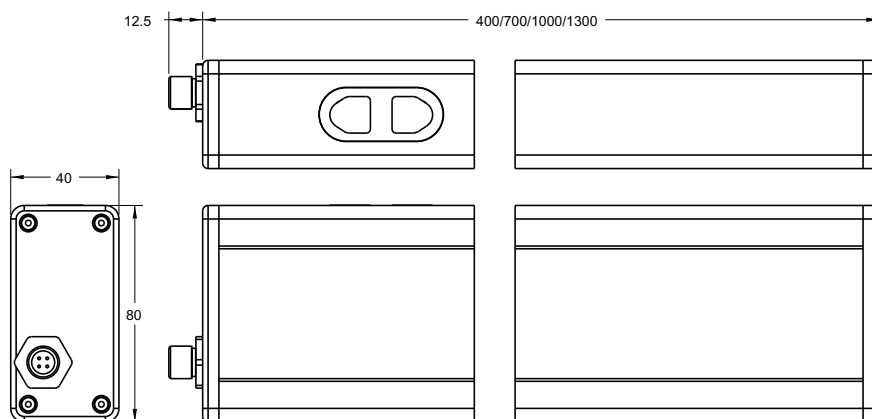
- Power supplies
- Extensions V-M12
- Angled bracket plate set AL-DWB
- Cut-off angle plate set AL-AWB
- Magnet holder AL-6-M
- Cable suspension AL-Seil
- Ceiling clip AL-Clip



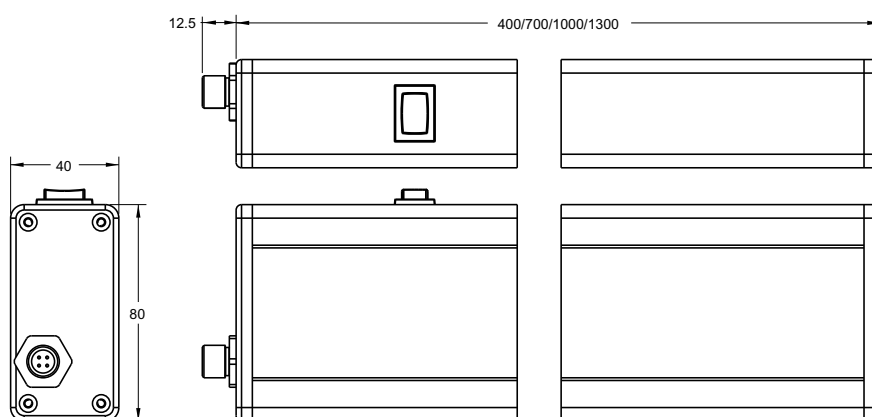
(Look at accessories page 67, 68, 69, 72)



AL-x-D



AL-x-S



Type	Power consumption max. [A]	Illuminance (lux) 1 m	Connection	Part no.
Version with M12 connector 				
AL-24-D	0.9	700	M12 connector	10822
AL-48-D	1.8	1,200	M12 connector	10824
AL-72-D	2.7	1,800	M12 connector	10826
AL-96-D	3.6	2,200	M12 connector	10828

Workplace lights

Series IL-6-BK/AL-9-BK/AL-12-BK

The workplace lights **IL-6-BK**, **AL-9-BK** and **AL-12-BK** are suitable for machine and workshop lighting, even where shiny parts in daylight color are involved. They have been designed for quality assurance and visual inspections in industrial use. Modern LED technology and a high degree of energy efficiency enable you to realise quality assurance and assembly work without any disruptive thermal radiation.

A flexible metal hose and a slim light head allow you to light even in hard to reach objects close to the region of interest. An integrated dimming-module offers a brightness adjustment to the ambient conditions.

The LED workplace lights are resistant to impacting and vibration, equipped with highly efficient LEDs and provides flicker-free working in daylight color with a high color rendering index.

All lights are available in black and will be delivered with table clamp.

TECHNICAL DATA

- Daylight quality, color temperature 5,700 K
- Dimming via UP/DOWN membrane keypad
- Robust aluminium housing, front optics polycarbonat
- Slim light head
- Flexible metal hose
- Versatile mountable
- IP 54 protection class

*Slim
and
flexible*



Applications samples

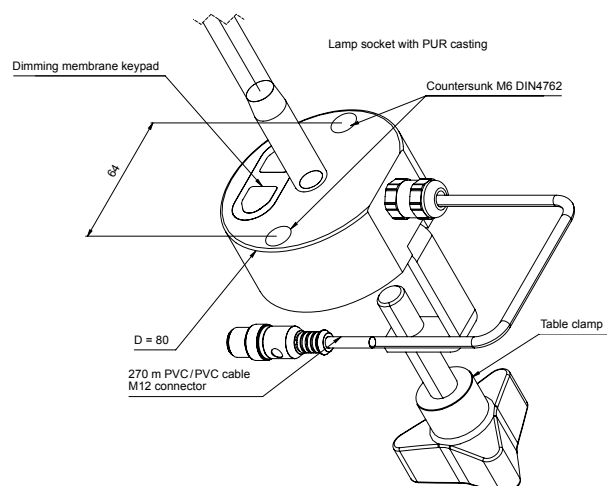
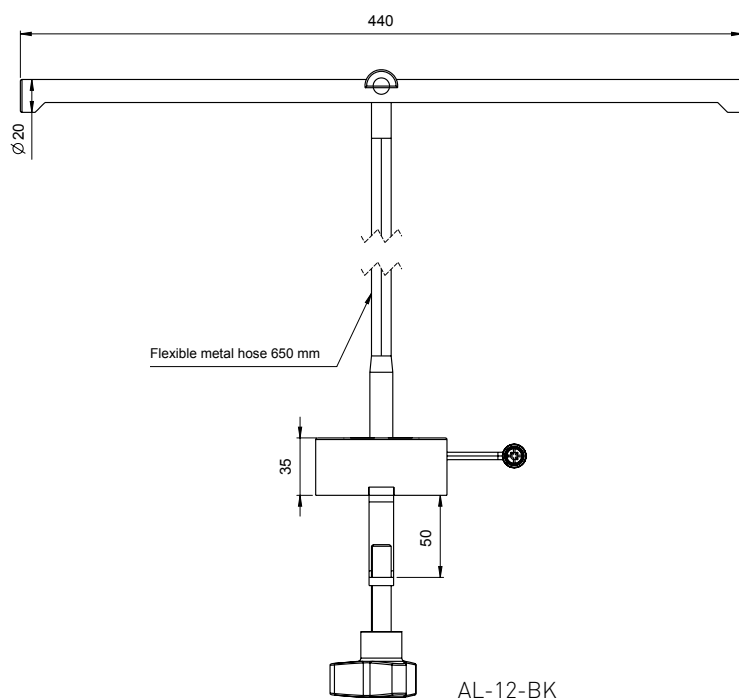
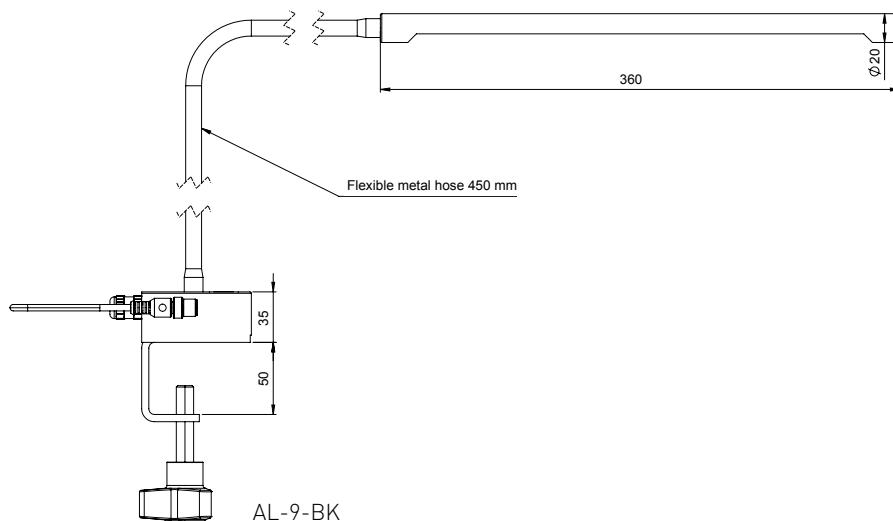
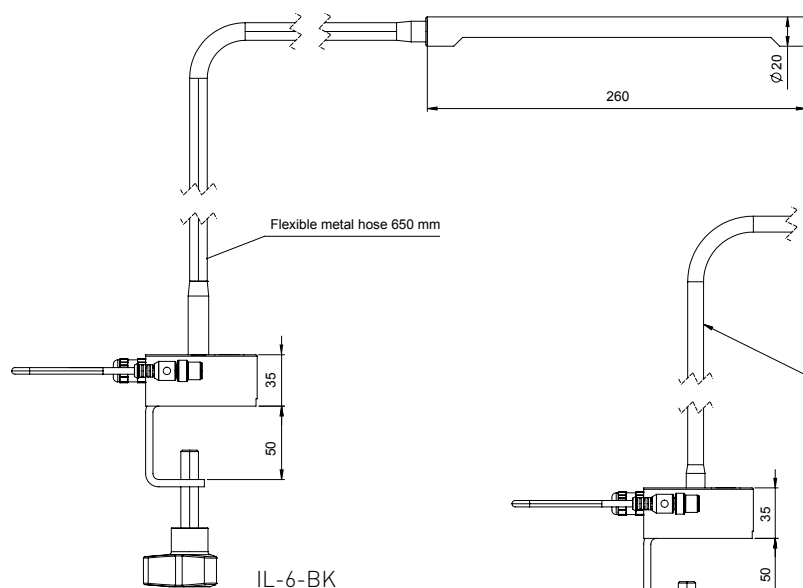


Type	Power consumption max. (A)	Connection	Part no.
Version with M12 connector 			
IL-6-BK	0.3	M12 connector	10789
AL-9-BK	0.4	M12 connector	10297
AL-12-BK	0.6	M12 connector	11060

ACCESSORIES OPTIONAL

- Magnet holder AL-6-M
- Power supply SN-12-M12/SN-24-M12

(Look at accessories page 68, 72)



Signal lights

Series SL-x-TRIO

The signal light series **SL-x-TRIO** is designed for front installation using two M6 hexagon socket head cap screws (DIN ISO 4762). These signal lights can thus be easily integrated into profile systems with T-nuts.

The stable aluminium housing and the **shock-resistant polycarbonate optic** can withstand tough industrial environments. The polycarbonate diffuser, which was specially developed for LED applications, ensures a **homogeneous light-emitting surface** with high efficiency.

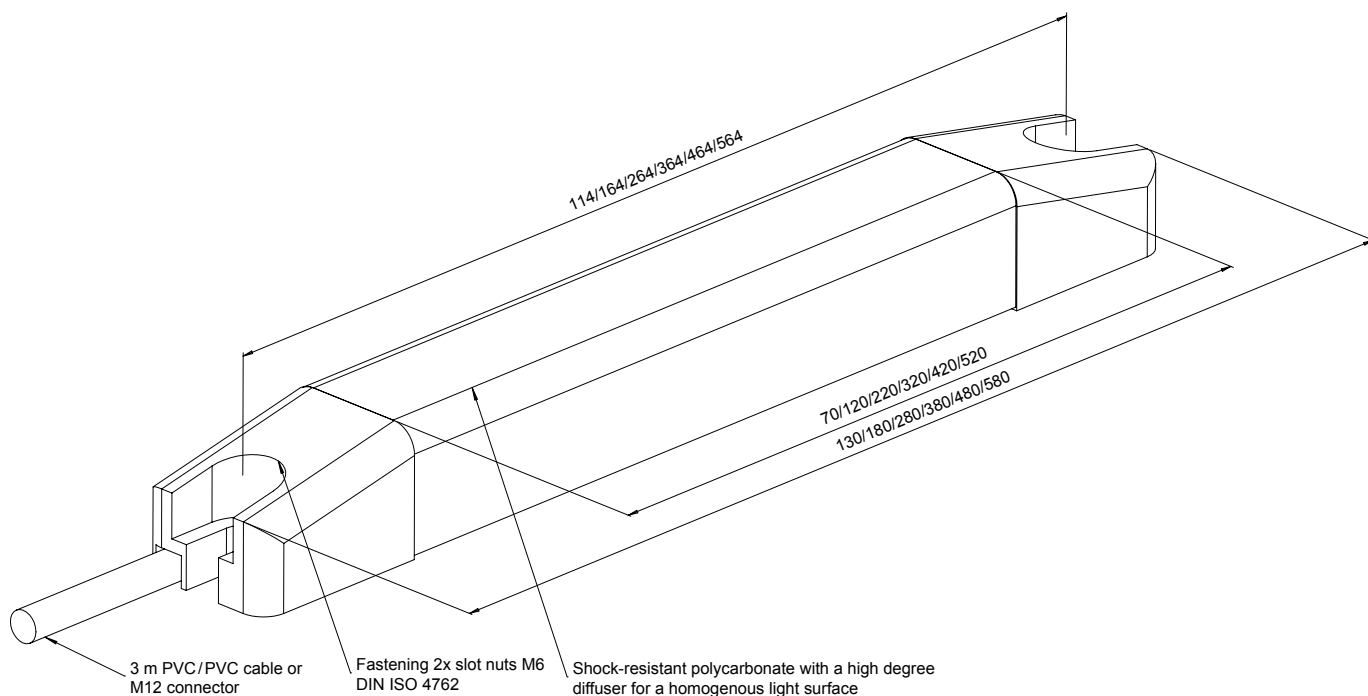
The electrical installation is easily realized with a Operating voltage of 24 V DC via a 4-pole PVC cable of 5 m in length or with a M12 connector. The Operating voltage range is 21–27 V DC. The maximum ambient temperature is 50° C.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Signal colors in one light: Red/Yellow/Green/Blue
- Resistant to shock or vibration
- Robust, anodized aluminium housing
- Shock-resistant polycarbonate diffuser
- IP 54 protection class, protection class 3



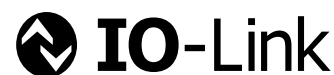
Type	Power consumption Color Red/Yellow/Green/Blue (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 				
SL-05-TRIO M12	20/40/20/20	130 x 24 x 20	M12 connector	11335
SL-1-TRIO M12	40/80/40/40	180 x 24 x 20	M12 connector	10911
SL-2-TRIO M12	80/160/80/80	280 x 24 x 20	M12 connector	11005
SL-3-TRIO M12	120/240/120/120	380 x 24 x 20	M12 connector	11006
SL-4-TRIO M12	160/320/160/160	480 x 24 x 20	M12 connector	11007
SL-5-TRIO M12	200/400/200/200	580 x 24 x 20	M12 connector	11008



Type	Power consumption Color Red/Yellow/Green/Blue (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PVC/PVC cable 				
SL-05-TRIO LC	20/40/20/20	130 x 24 x 20	5 m PUR/PVC	11336
SL-1-TRIO LC	40/80/40/40	180 x 24 x 20	5 m PUR/PVC	10742
SL-2-TRIO LC	80/160/80/80	280 x 24 x 20	5 m PUR/PVC	10743
SL-3-TRIO LC	120/240/120/120	380 x 24 x 20	5 m PUR/PVC	10744
SL-4-TRIO LC	160/320/160/160	480 x 24 x 20	5 m PUR/PVC	10745
SL-5-TRIO LC	200/400/200/200	580 x 24 x 20	5 m PUR/PVC	10746

Signal lights

Series SL-x-TRIO IOLINK



The **SL-x-TRIO IOLINK** signal lights series is designed for frontal mounting with two M6 hexagon socket head cap screws (DIN ISO 4762). As a result, these signal lights can be integrated with ease in profile systems with a T-slot.

The sturdy aluminium housing and **shock-resistant polycarbonate optic** can withstand severe industrial conditions. Specially developed for LED applications, the polycarbonate diffuser ensures a **homogeneous light-emitting surface** and a high degree of efficiency.

With an IO link interface, these intelligent signal lights ensure that you know how your transducer is functioning at all times. Conventional manual function tests (lamp tests) are dispensed with.

In addition, you can parameterise the colors and signal functions and the frequency and tone intervals of the integrated piezo buzzer at any time for these signal lights via the IO link interface.

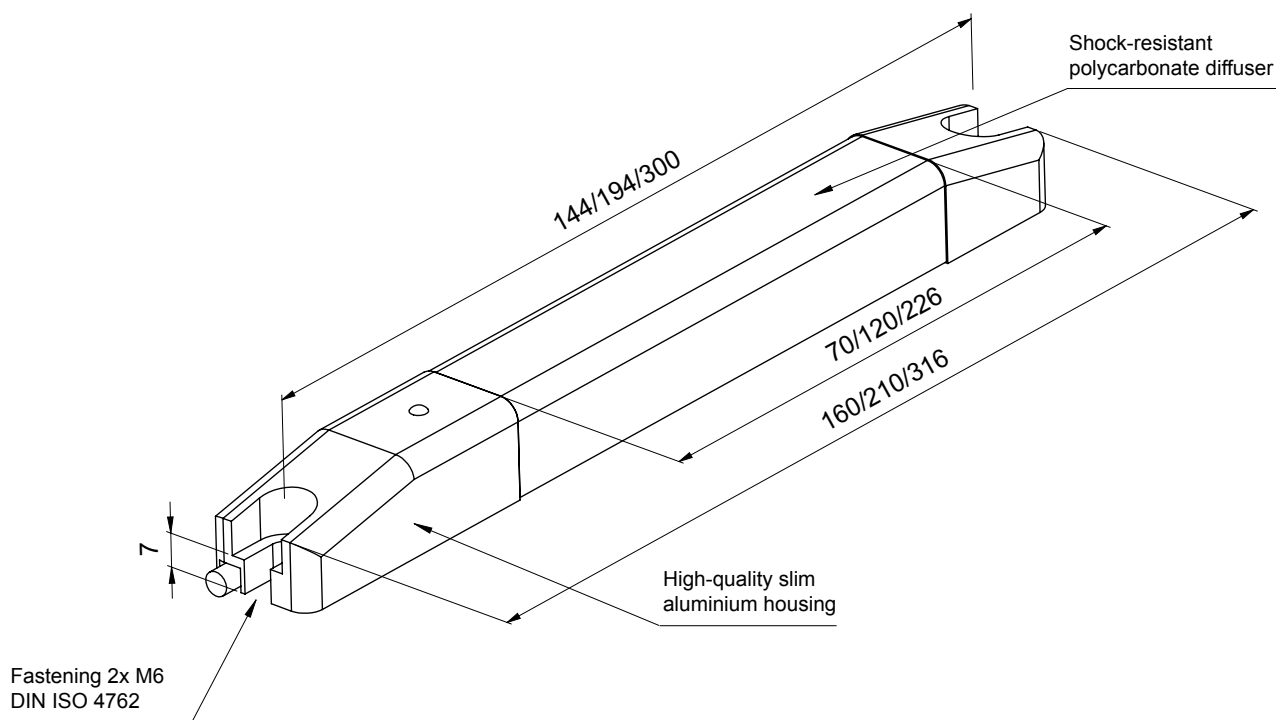


TECHNICAL DATA

- Operating voltage 20–30 V DC
- IO link interface COM2
- Connection with 3 m PVC/PVC cable or M12 connector
- Shock-resistant polycarbonate diffuser for homogeneous signal surface
- High shock resistance: No internal oscillators and inductances sensitive to shock
- All RGB colors adjustable
- Integrated piezo transducer
- Parameterisable via IO link:
 - 24-bit RGB color table
 - Permanent function, flashing frequency and interpulse period, dimming, signal color
 - Buzzer frequency 2,500–4,000 Hz
 - Continuous tone, interpulse period and audio signal
- Integrated LED current and buzzer current monitor with error event output
- IP 54 protection class, protection class 3



Type	Power consumption max. (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 				
SL-05-TRIO IOLINK M12	70	160 x 24 x 20	M12 connector	11359 
SL-1-TRIO IOLINK M12	130	210 x 24 x 20	M12 connector	11352 
SL-2-TRIO IOLINK M12	200	316 x 24 x 20	M12 connector	11353 



Type	Power consumption max. (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable 				
SL-05-TRIO IOLINK LC	70	160 x 24 x 20	3 m PVC/PVC	11358 
SL-1-TRIO IOLINK LC	130	210 x 24 x 20	3 m PVC/PVC	11354 
SL-2-TRIO IOLINK LC	200	316 x 24 x 20	3 m PVC/PVC	11355 

Signal lights

Series SL-x-TRIO Corner

The signal light series **SL-x-TRIO Corner** is designed for being installed in the corner of machines. Thanks to the system profile housing in the 20 mm grid and slot 5 it is very easy to generate a space-saving mounting in corners.

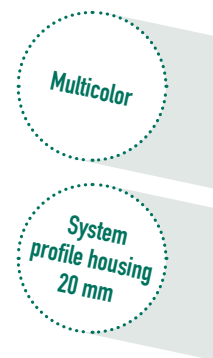
The **polycarbonate** front optic is **shock-resistant**. Due to the high degree of diffusion it has a high level of glare suppression and a homogenous light-emitting surface.

The signal lights of the series SL-x-Trio Corner are available either with 5 m PVC/PVC cable with open end or with a M12 connector (*M12 types). These signal lights are available in 5 different sizes and perfectly suited for a **space-saving mounting in corners**.

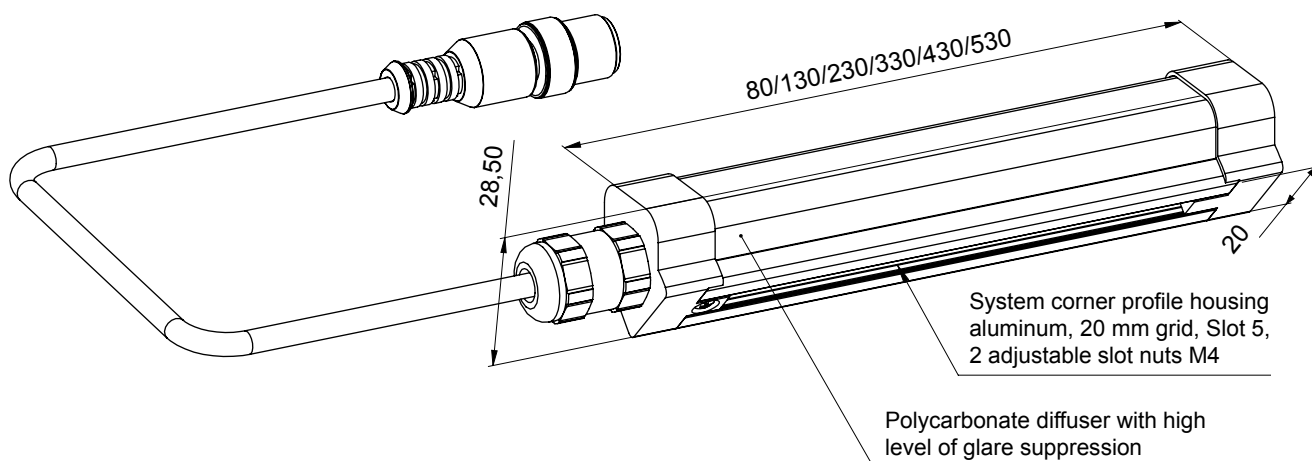


TECHNICAL DATA

- Operating voltage 21–27 V DC
- Four signal colors in one light: Red/Yellow/Green/Blue
- Max. ambient temperature 50° C
- Integrated overvoltage, current and temperature protection
- IP 54 protection class, protection class 3



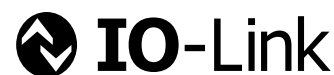
Type	Power consumption Color Red/Green/Yellow/Blue (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 				
SL-05-TRIO M12 Corner M12	20/40/20/20	80 x 28.5 x 28.5	M12 connector	11338
SL-1-TRIO M12 Corner M12	40/80/40/40	130 x 28.5 x 28.5	M12 connector	11190
SL-2-TRIO M12 Corner M12	80/160/80/80	230 x 28.5 x 28.5	M12 connector	11192
SL-3-TRIO M12 Corner M12	120/240/120/120	330 x 28.5 x 28.5	M12 connector	11194
SL-4-TRIO M12 Corner M12	160/320/160/160	430 x 28.5 x 28.5	M12 connector	11196
SL-5-TRIO M12 Corner M12	200/400/200/200	530 x 28.5 x 28.5	M12 connector	11198



Type	Power consumption Color Red/Green/Yellow/Blue (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PVC/PVC cable 				
SL-05-TRIO Corner LC	20/40/20/20	80 x 28.5 x 28.5	5 m PVC/PVC	11337
SL-1-TRIO Corner LC	40/80/40/40	130 x 28.5 x 28.5	5 m PVC/PVC	11189
SL-2-TRIO Corner LC	80/160/80/80	230 x 28.5 x 28.5	5 m PVC/PVC	11191
SL-3-TRIO Corner LC	120/240/120/120	330 x 28.5 x 28.5	5 m PVC/PVC	11193
SL-4-TRIO Corner LC	160/320/160/160	430 x 28.5 x 28.5	5 m PVC/PVC	11195
SL-5-TRIO Corner LC	200/400/200/200	530 x 28.5 x 28.5	5 m PVC/PVC	11197

Signal lights

Series SL-x-TRIO Corner IOLINK



The signal lights series **SL-x-TRIO Corner IOLINK** are built on the base of a system profile housing in the grid of 20 mm and slot 5. Easy installation in machines and apparatus is achieved by means of two movable slot nuts supplied.

The front optic is made of **shock-resistant and shatterproof polycarbonate**. Due to the high degree of diffusion it has a high glare suppression and a **homogenous light-emitting surface**.

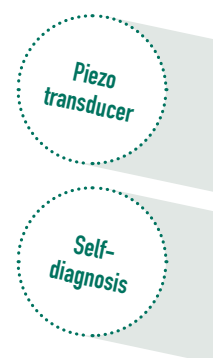
With an IO link interface, these intelligent signal lights ensure that you know how your transducer is functioning at all times. Conventional manual function tests (lamp tests) are dispensed with.

In addition, you can parameterise the colors and signal functions and the frequency and tone intervals of the integrated piezo buzzer at any time for these signal lights via the IO link interface.

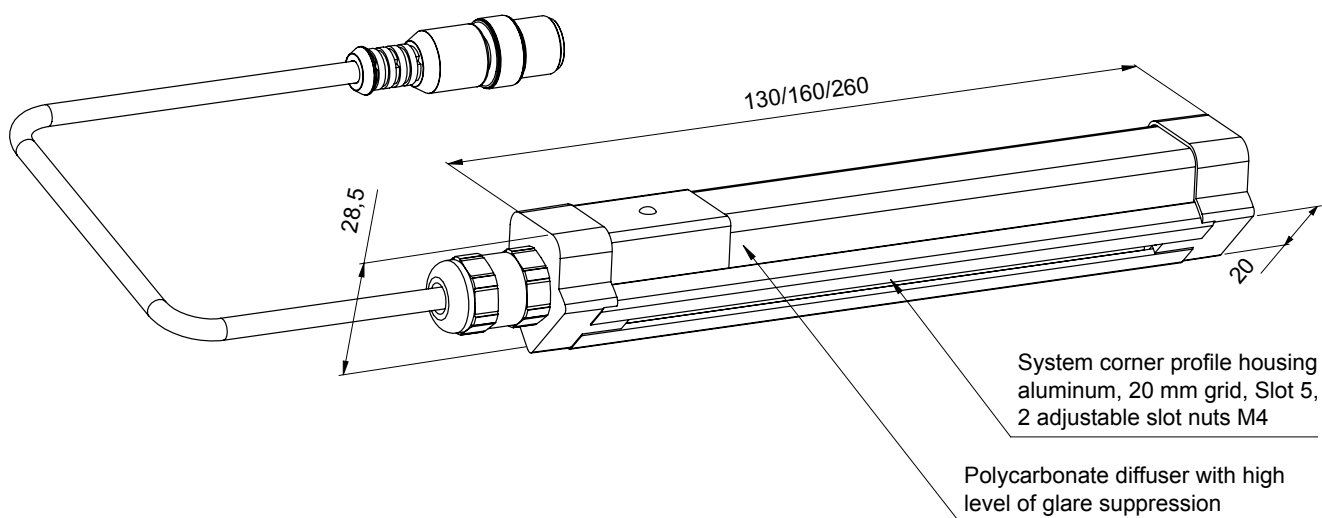


TECHNICAL DATA

- Operating voltage 20–30 V DC
- IO link interface COM2
- Connection with 3 m PVC/PVC cable or M12 connector
- Shock-resistant polycarbonate diffusor for homogeneous signal surface
- High shock resistance: No internal oscillators and inductances sensitive to shock
- All RGB colors adjustable
- Integrated piezo transducer
- Parameterisable via IO link:
 - 24-bit RGB color table
 - Permanent function, flashing frequency and interpulse period, dimming, signal color
 - Buzzer frequency 2,500–4,000 Hz
 - Continuous tone, interpulse period and audio signal
- Integrated LED current and buzzer current monitor with error event output
- IP 54 protection class, protection class 3



Type	Power consumption max. (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 				
SL-05-TRIO M12 Corner IOLINK M12	70	130 x 28.5 x 28.5	M12 connector	11362 
SL-1-TRIO M12 Corner IOLINK M12	130	160 x 28.5 x 28.5	M12 connector	11364 
SL-2-TRIO M12 Corner IOLINK M12	200	260 x 28.5 x 28.5	M12 connector	11366 



Type	Stromaufnahme max. (mA)	Dimensions L x W x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable 				
SL-05-TRIO Corner IOLINK LC	70	130 x 28.5 x 28.5	3 m PVC/PVC	11361 
SL-1-TRIO Corner IOLINK LC	130	160 x 28.5 x 28.5	3 m PVC/PVC	11363 
SL-2-TRIO Corner IOLINK LC	200	260 x 28.5 x 28.5	3 m PVC/PVC	11365 

Signal lights

Series SL-x-TRIO R

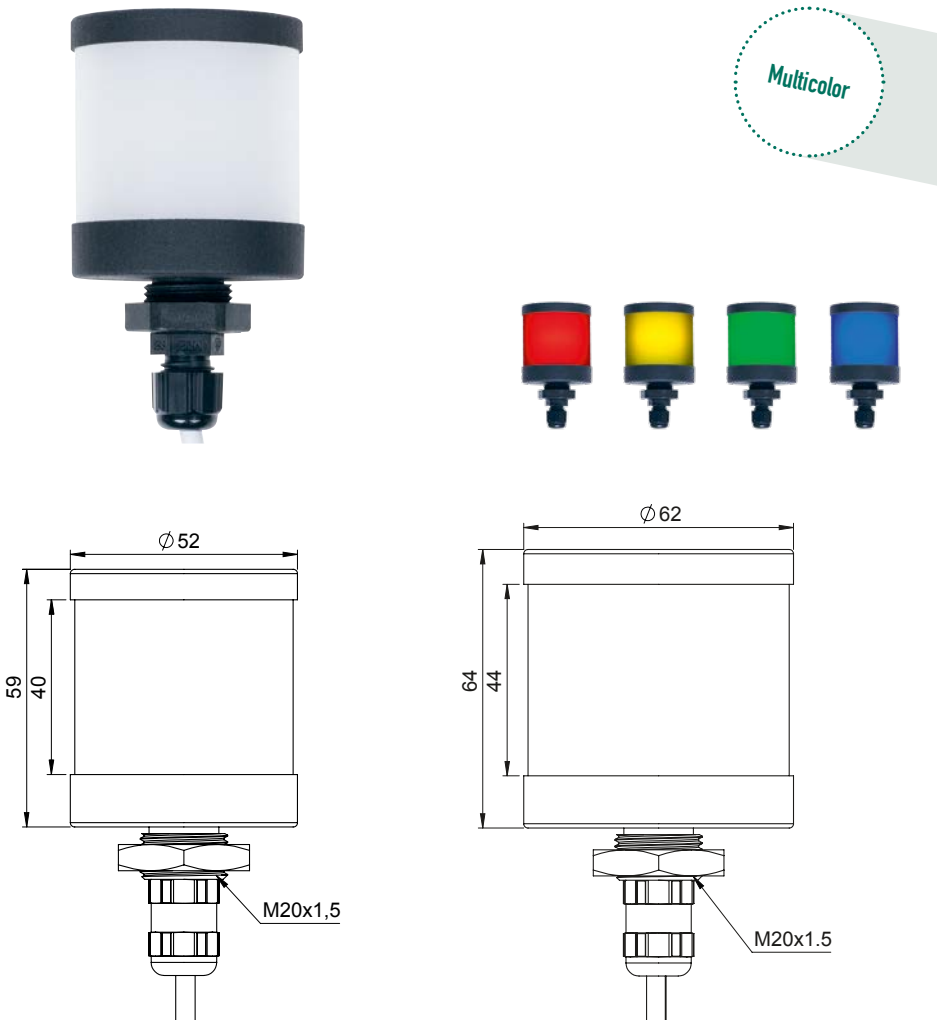
Distinctive characteristics of the **SL-x-TRIO R** signal light series are the low installation height with simultaneously homogeneous light in four signal colors, as well as the robust and high-quality aluminium housing available in two diameters of 52 mm and 62 mm.

The number of possible applications benefits from their individual design and their adherence with technical standards for industrial environments.

The 24 V DC operating voltage for each color is supplied via a 4-pole PVC/PVC cable of 5 m in length or a M12 connector plug. The maximum ambient temperature is 50° C.

TECHNICAL DATA

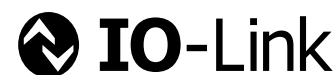
- Operating voltage 21–27 V DC
- Robust aluminium housing
- Four signal colors in one device: Red/Yellow/Green/Blue
- Shock-resistant polycarbonate diffuser for homogeneous light-emitting surface
- Integrated overcurrent and temperature protection
- Integrated reverse polarity protection
- IP 67 protection class, protection class 3



Type	Power consumption Color Red/Yellow/Green/Blue (mA)	Dimensions Ø x H (mm)	Part no.
Version with 5 m PVC/PVC cable or M12 connector 			
SL-50-TRIO-R LC/SL-50-TRIO-R M12	40/80/40/40	52 x 59	11046/11047
SL-60-TRIO-R LC/SL-60-TRIO-R M12	80/160/80/80	62 x 64	11048/11049

Signal lights

Series SL-x-TRIO-R IOLINK



Distinctive characteristics of the **SL-x-TRIO-R IOLINK** signal light series are the low installation height with simultaneous homogeneous display of a wide range of colors (24-bit color depth), as well as the robust and high-quality aluminium housing available in two diameters of 52 mm and 62 mm.

The number of possible applications benefits from their individual design and their adherence with technical standards for industrial environments.

With an **IO link interface**, these intelligent signal lights ensure that you know how your transducer is functioning at all times. Conventional manual function tests (lamp tests) are dispensed with.

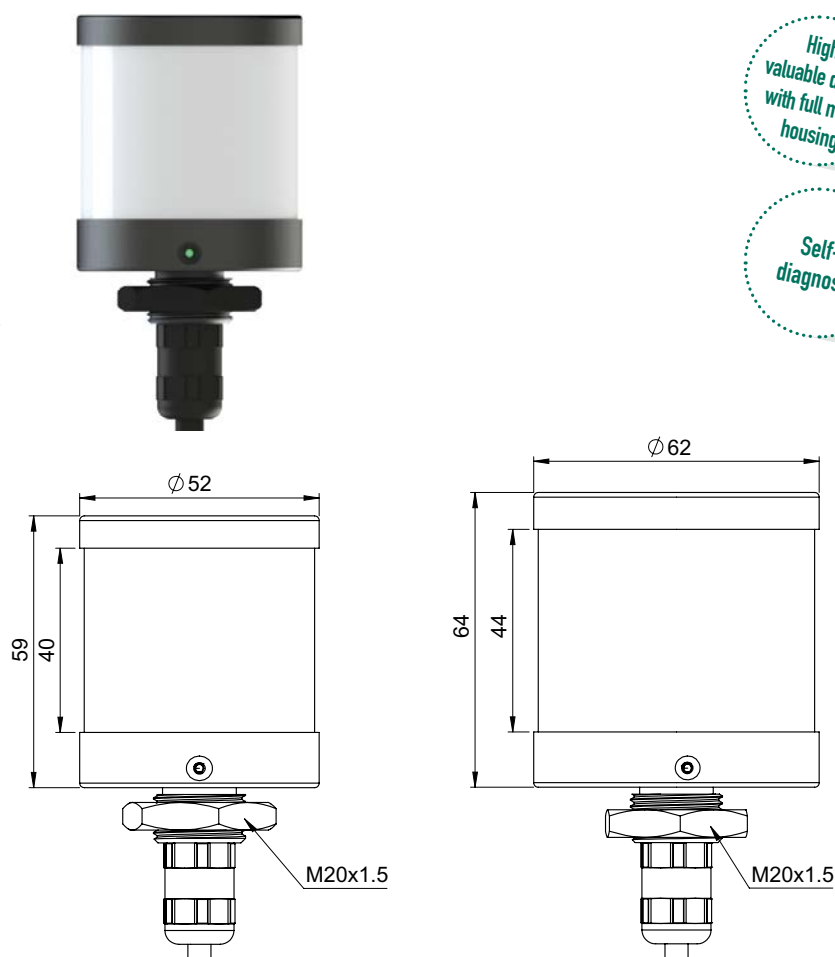
In addition, you can parameterise these signal lights with **signal functions (flashing, flashing frequency, flash, etc.)** at any time via the IO link interface.

The 24 V DC operating voltage for each color is supplied via a 3-pole PVC/PVC cable of 3 m in length or a M12 connector plug. The maximum ambient temperature is 50° C.



TECHNICAL DATA

- Operating voltage 20–30 V DC
- IO link interface COM2
- Connection with 3 m PVC/PVC cable or M12 connector
- Shock-resistant polycarbonate diffuser for homogeneous signal surface
- High shock resistance: No internal oscillators and inductances sensitive to shock
- All RGB colors adjustable
- Parameterisable via IO link:
 - 24-bit RGB color table
 - Permanent function, flashing frequency and interpulse period, dimming, signal color
- Integrated LED current and buzzer current monitor with error event output
- Integrated reverse polarity protection with error event
- IP 67 protection class, protection class 3



Typ	Power consumption Color Red/Yellow/Green/Blue (mA)	Dimensions Ø x H (mm)	Part no.
Version with 5 m PVC/PVC cable or M12 connector 			
SL-50-TRIO-R IOLINK LC/SL-50-TRIO-R IOLINK M12	40/80/40/50	52 x 59	11367/11368 
SL-60-TRIO-R IOLINK LC/SL-60-TRIO-R IOLINK M12	80/160/80/80	62 x 64	11369/11370 

Signal lights

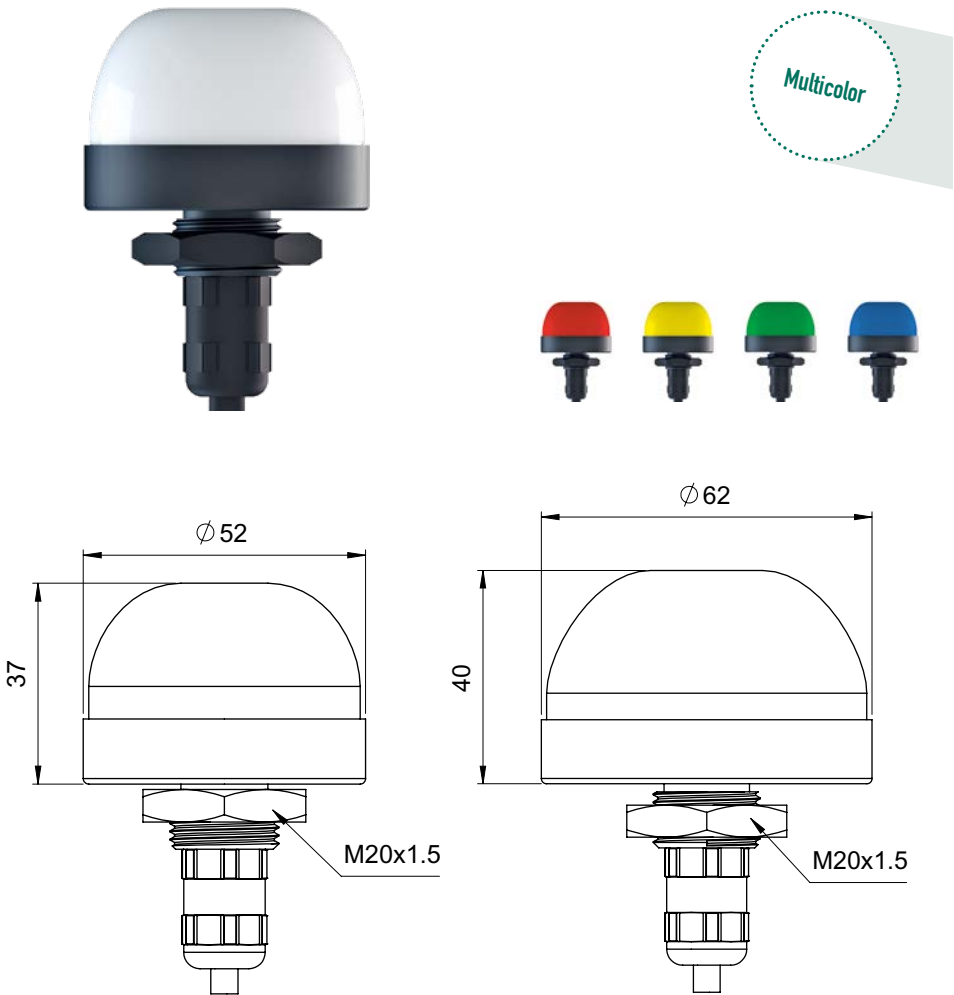
Series SL-x-TRIO RT

Distinctive characteristics of the **SL-x-TRIO RT** signal light series are the low installation height with simultaneously homogeneous light in four signal colors, as well as the robust and high-quality aluminium housing available in two diameters of 52 mm and 62 mm.

The number of possible applications benefits from their individual design and their adherence with technical standards for industrial environments.

TECHNICAL DATA

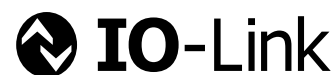
- Operating voltage 21–27 V DC
- Robust aluminium housing
- Shock-resistant polycarbonate diffuser
- Four signal colors in one device: Red / Yellow / Green / Blue
- Homogeneous light-emitting surface
- Integrated overcurrent and temperature protection
- Integrated reverse polarity protection
- IP 67 protection class, protection class 3



Type	Power consumption Color Red / Yellow / Green / Blue (mA)	Dimensions Ø x H (mm)	Part no.
Version with 5 m PVC / PVC cable or M12 connector  			
SL-50-TRIO-RT LC / SL-50-TRIO-RT M12	40 / 80 / 40 / 40	52 x 37	11339 / 11340
SL-60-TRIO-RT LC / SL-60-TRIO-RT M12	80 / 160 / 80 / 80	62 x 40	11341 / 11342

Signal lights

Series SL-x-TRIO-RT IOLINK



Distinctive characteristics of the **SL-x-TRIO-RT IOLINK** signal light series are the low installation height with simultaneous homogeneous display of a wide range of colors (24-bit color depth), as well as the robust and high-quality aluminium housing available in two diameters of 52 mm and 62 mm.

The number of possible applications benefits from their individual design and their adherence with technical standards for industrial environments.

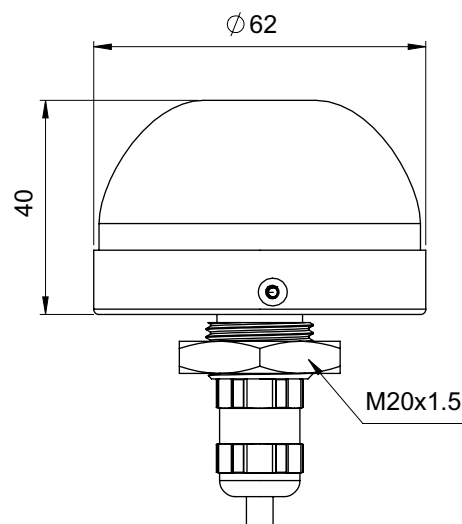
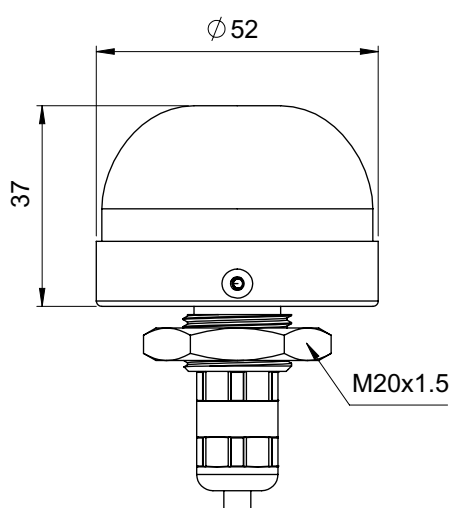
With an **IO link interface**, these intelligent signal lights ensure that you know how your transducer is functioning at all times. Conventional manual function tests (lamp tests) are dispensed with.

In addition, you can parameterise these signal lights with **signal functions (flashing, flashing frequency, flash, etc.)** at any time via the IO link interface.



TECHNICAL DATA

- Operating voltage 20–30 V DC
- IO link interface COM2
- Connection with 3 m PVC/PVC cable or M12 connector
- Shock-resistant polycarbonate diffuser for homogeneous signal surface
- High shock resistance: No internal oscillators and inductances sensitive to shock
- All RGB colors adjustable
- Parameterisable via IO link:
 - 24-bit RGB color table
 - Permanent function, flashing frequency and interpulse period, dimming, signal color
- Integrated LED current and buzzer current monitor with error event output
- Temperature monitoring
- IP 67 protection class, protection class 3



Type	Power consumption Color Red/Yellow/Green/Blue (mA)	Dimensions Ø x H (mm)	Part no.	
Version with 3 m PVC/PVC cable or M12 connector 				
SL-50-TRIO-RT IOLINK LC/SL-50-TRIO-RT IOLINK M12	40/80/40/40	52 x 37	11371/11372	
SL-60-TRIO-RT IOLINK LC/SL-60-TRIO-RT IOLINK M12	80/160/80/80	62 x 40	11373/11374	

Signal spots

Series SL-5-R/G

The signal spots **SL-5-R/G** points an object with a signal color red or green.

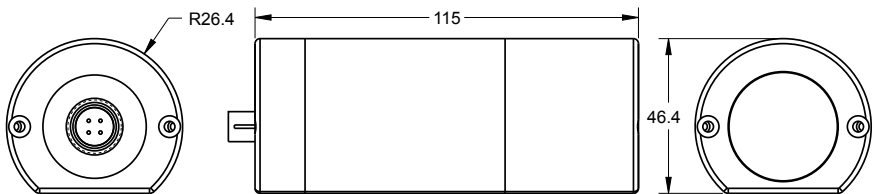
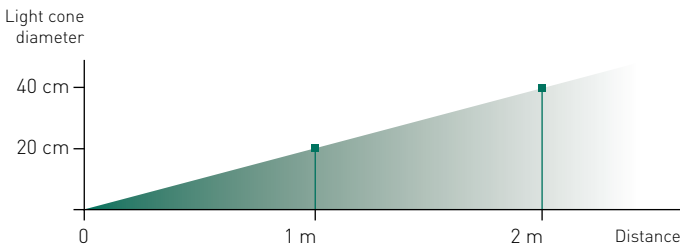
LED signal spots allow selective illumination in harsh industrial environments with compact dimensions and robust construction. A fully encapsulated electronics unit and an impact resistant polycarbonate front optic protects the lamp. The signal-spots reaches the IP 65 protection class.

The use of a system profile housing allows easy and flexible installation.



TECHNICAL DATA

- Operating voltage 12–30 V DC
- Robust aluminium housing with slot nuts M6 (nut 8)
- Connection with M12 connector plug
- Remote control and dimming with 24 V switching signal (PWM)
- Integrated overvoltage and temperature protection
- IP 65 protection class, protection class 3



Type	Power consumption at 24 V [A]	Luminous color	Connection	Part no.
Version with M12 connector 				
SL-5-R ●	0.2	Red	M12 connector	10610
SL-5-G ●	0.2	Green	M12 connector	10611

Signal lights

Series SL-x-F / NGO

Due to their compact design, signal lights in the series **SL-x-F/NGO** can be positioned very near to the object so that the relevant signal is easier to locate. As a result of the completely encapsulated design, these signal lights are protected against emulsions, lubricating oils, cleaning agents, etc.

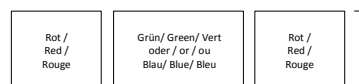
The SL-x-F / NGO series can, for example, be mounted directly inside a machine cell so that the entire machine cell lights up in the respective signal color.

TECHNICAL DATA

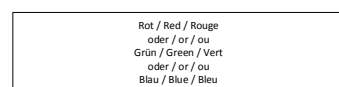
- Operating voltage 21–27 V DC
- Robust aluminium housing
- New compact design
- Completely encapsulated electronics in crystal clear PUR casting
- High luminosity
- Integrated reverse polarity protection
- IP 68 protection class, protection class 3



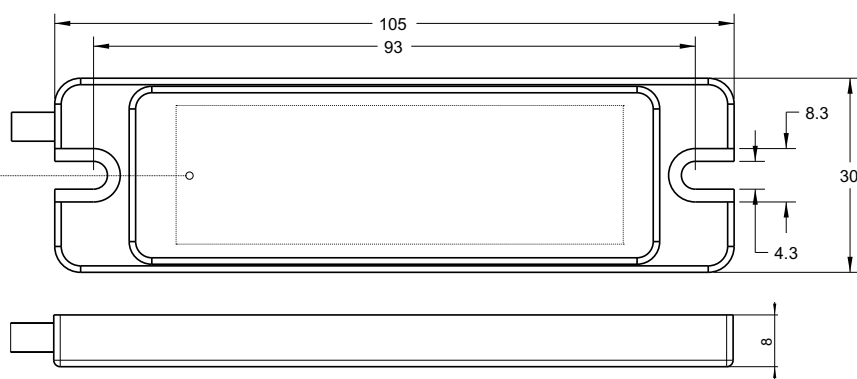
SL-3-F R/G/B



SL-3-F RG/RB



SL-1-NGO



Type	Power consumption (mA)	Color	Dimensions L x W x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable 					
SL-3-F R	130	Red	105 x 30 x 8	3 m PVC/PVC	10629
SL-3-F G	130	Green	105 x 30 x 8	3 m PVC/PVC	10630
SL-3-F B	130	Blue	105 x 30 x 8	3 m PVC/PVC	10631
SL-3-F RG	60/80	Red- Green -Red	105 x 30 x 8	3 m PVC/PVC	10632
SL-3-F RB	60/80	Red-Blue-Red	105 x 30 x 8	3 m PVC/PVC	10633
SL-1-NGO	67/16	Red- Green	105 x 30 x 8	3 m PVC/PVC	11517

Signal lights

Series SL-x-F Ampel / Ampel R

The signal lights **SL-x-F-Ampel** with their very flat design are quite simple to door or gate systems or other mounting without cut-outs. They have a high degree of protection (IP 68) due to the fully encapsulated electronics. They have a high degree of protection (IP 68) due to the completely encapsulated electronics and are waterproof, oil-tight and easy to clean.

The operating voltage is 24 V. The robust LEDs are operated with current stabilisation.

TECHNICAL DATA

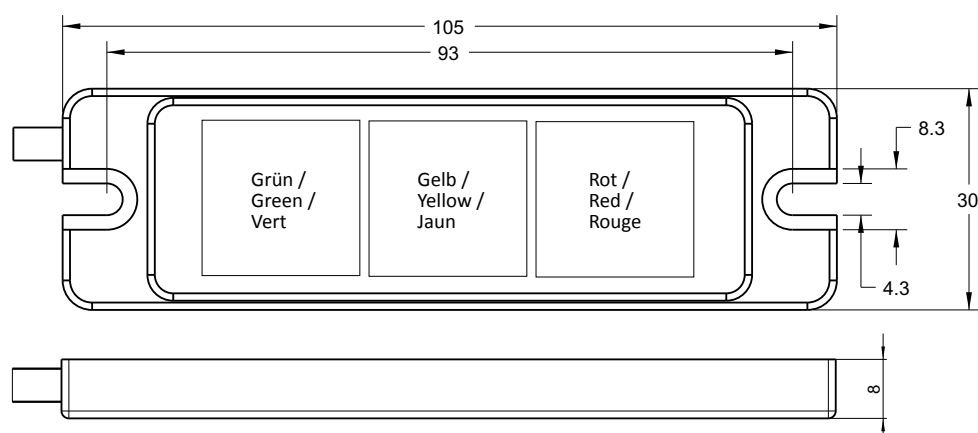
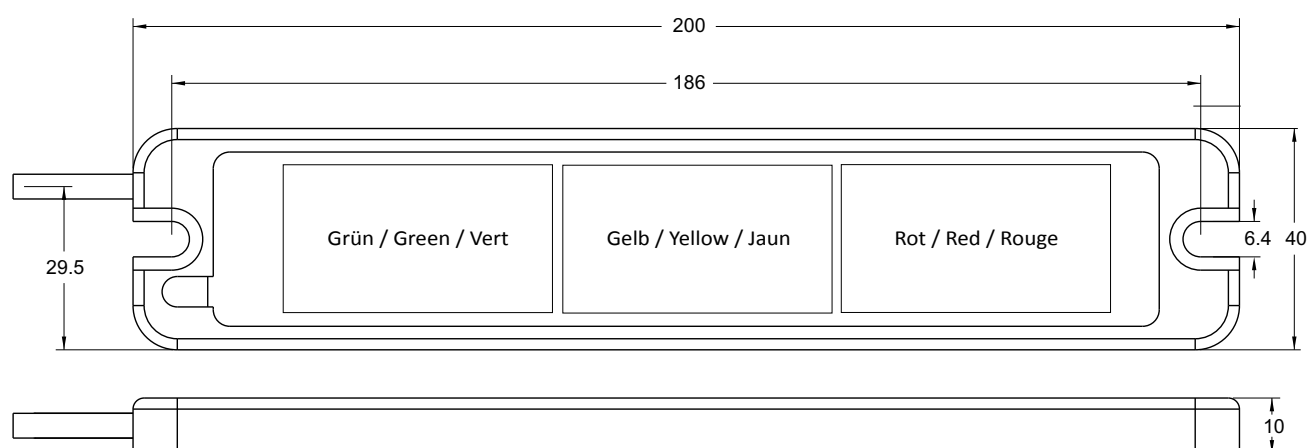
- Operating voltage 21–27 V DC
- Robust aluminium housing
- New compact design
- LEDs colors Red/Yellow/Green
- Completely encapsulated electronics in crystal clear PUR casting
- High luminosity
- Max. ambient temperature 50° C
- Integrated reverse polarity protection
- IP 68 protection class, protection class 3



Switching functions



Type	Power consumption (mA)	Color	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PVC/PVC cable 					
SL-1-F Ampel	40/40/40	Red-Yellow-Green	105 x 30 x 8	5 m PVC/PVC	10706
SL-2-F Ampel	80/80/80	Red-Yellow-Green	200 x 40 x 10	5 m PVC/PVC	10710
SL-1-Ampel R	33/33/16	Red-Yellow-Green	105 x 30 x 8	5 m PVC/PVC	11520



Status lights

Series SL-x-60R-RGBW

The **SL-x-60R-RGBW** series status lights are universal tube lights made of **impact-resistant and shatterproof polycarbonate**. The high degree of diffusion offers very good glare control and generates a homogeneous light area. The status lights can be rotated almost 350° which makes it easier to align with objects.

The status lights are operated with a supply voltage of 24 V DC. The connection to the supply voltage is implemented via a 4-pin M12 sensor connector. This allows eight status states to be encoded (with the OFF state).

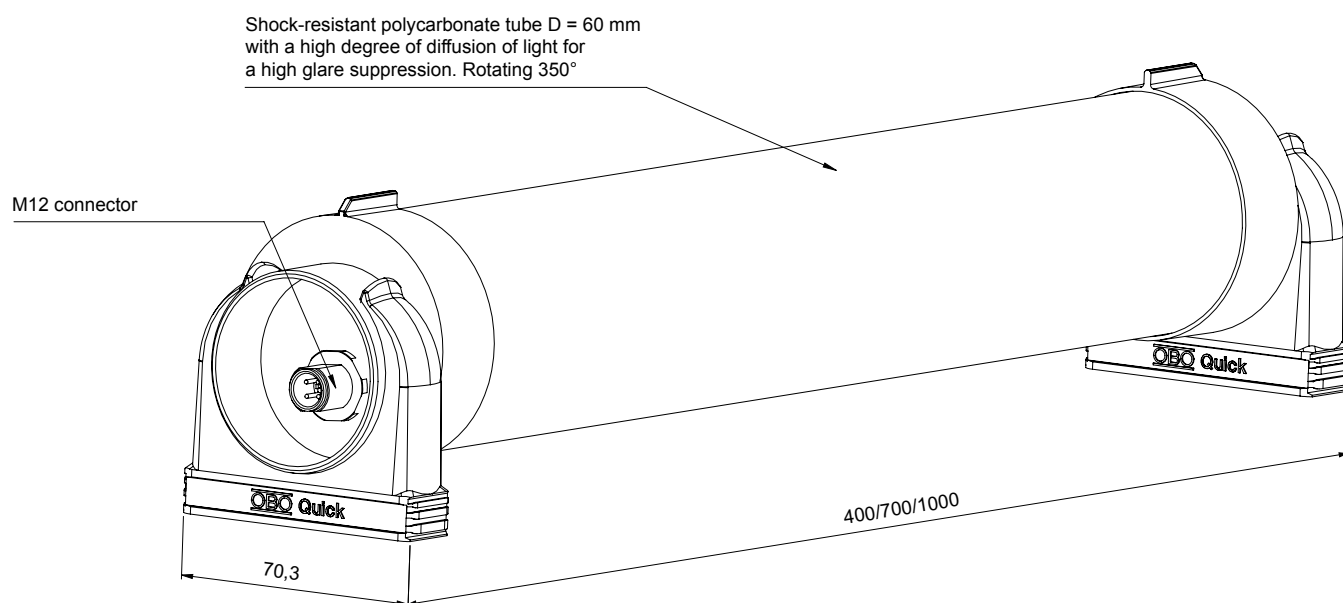


TECHNICAL DATA

- Operating voltage 21–27 V DC
- Status colors and states: Red / Green / Blue / Yellow / Purple / White (5,700 K) and flashing red.
- Flashing signal: red
- Diffused 60 mm polycarbonate tube with 2 mm wall thickness
- Operating temperature max. 40° C
- Integrated surge protection
- IP 67 protection class, protection class 3



Type	Operating voltage (V DC)	Power consumption [A] R/G/B/W	Rated capacity [W]	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 						
SL-9-60R-RGBW	24	0.5/0.2/0.5/0.5	12/5/12/12	400 x 70.3 x 74.8	M12 connector	11612
SL-18-60R-RGBW	24	1/0.4/1/1	24/10/24/24	700 x 70.3 x 74.8	M12 connector	11613
SL-27-60R-RGBW	24	1.5/0.6/1.5/1.5	36/15/36/36	1,000 x 70.3 x 74.8	M12 connector	11614



Machine handles

Series MG-x-2Tx

The machine handles **MG-x-T2x** are made of natural-colored anodized aluminum and the handle legs are made of black plastic. The profile was specially designed to integrate additional functions in the installation of electronic assemblies.

The MG-x-T2x series is equipped with two integrated electronic buttons with short-circuit-proof output drivers and a green feedback LED. Contactors can be operated with the integrated semiconductor power drivers without a coupling relay. The buttons are debounced via software and have a minimum duty cycle of 200 ms. The connection to the power voltage (24 V DC) is made via a 5 m cable with an M12 connector or with an open end.

The machine handles are available in different lengths and switching functions (switches or buttons).

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Operating temperature max. 50°C
- Fastening via 2x cylinder screws, hexagonal socket M8 x 55/DIN ISO 4762
- Integrated overcurrent protection
- Integrated reverse polarity protection
- Two outputs 0.8 A/short-circuit proof
- Controllable LED for green illumination button "ON"
- IP 65 protection class
- Available with switch/button function

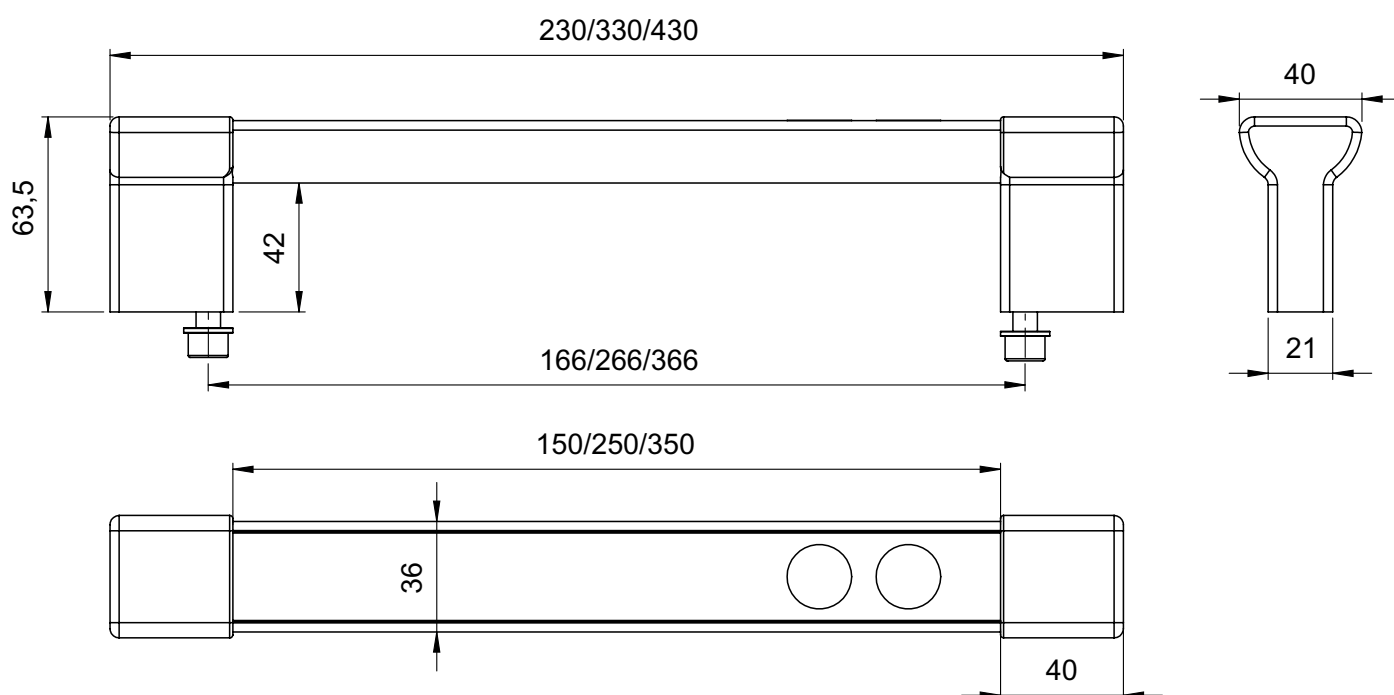


Elegant
design

Button "ON"
with green
signaling LED

Switching
capacity
2x 0.8 A

Type	Operating voltage (V DC)	Symbols S = Switch function T = Button function	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 					
MG-1-2TF M12	24	 T/T 	230 x 40 x 63,5	M12 connector	11600
MG-1-2TL M12	24	 T/T 	230 x 40 x 63,5	M12 connector	11602
MG-2-2TF M12	24	 T/T 	330 x 40 x 63,5	M12 connector	11604
MG-2-2TL M12	24	 T/T 	330 x 40 x 63,5	M12 connector	11606
MG-3-2TF M12	24	 T/T 	430 x 40 x 63,5	M12 connector	11608
MG-3-2TL M12	24	 T/T 	430 x 40 x 63,5	M12 connector	11610



Type	Operating voltage (V DC)	Symbols S = Switch function T = Button function	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PVC/PVC cable 					
MG-1-2TF LC	24	 T/T 	230 x 40 x 63,5	5 m PVC/PVC	11601
MG-1-2TL LC	24	 T/T 	230 x 40 x 63,5	5 m PVC/PVC	11603
MG-2-2TF LC	24	 T/T 	330 x 40 x 63,5	5 m PVC/PVC	11605
MG-2-2TL LC	24	 T/T 	330 x 40 x 63,5	5 m PVC/PVC	11607
MG-3-2TF LC	24	 T/T 	430 x 40 x 63,5	5 m PVC/PVC	11609
MG-3-2TL LC	24	 T/T 	430 x 40 x 63,5	5 m PVC/PVC	11611

Machine handles

Series MG-x-Trio

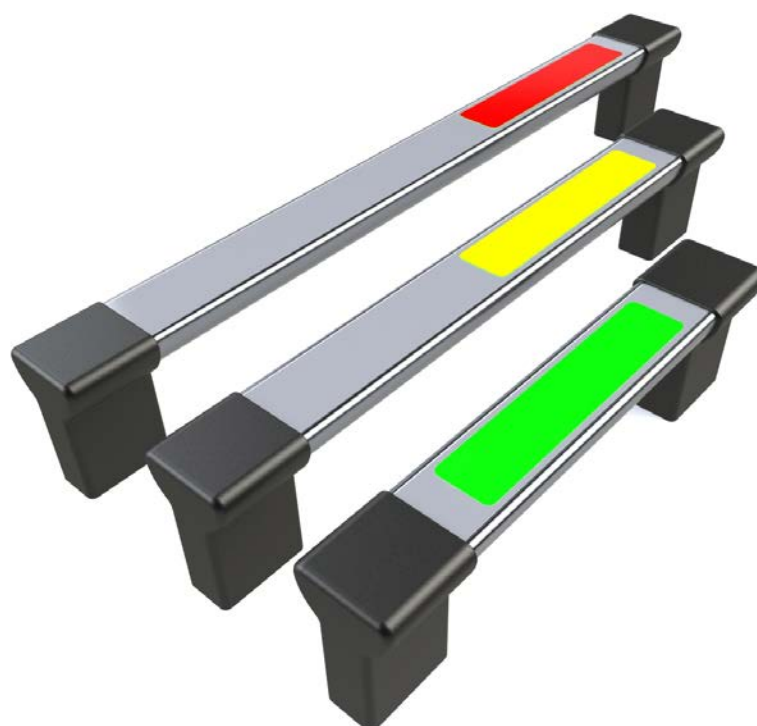
Machine handles of the **MG-x-TRIO** series are made of natural-colored anodized aluminium and handle legs made of black plastic. The profile has been specially designed for the installation of electronic modules for the integration of additional functions.

The polycarbonate diffuser, specially developed for LED applications, ensures a **homogeneous luminous surface** with high efficiency.

The connection to the power (24 V DC) is made at the rear side via a 5 m PVC/PVC cable with M12 connector or with open end.

TECHNICAL DATA

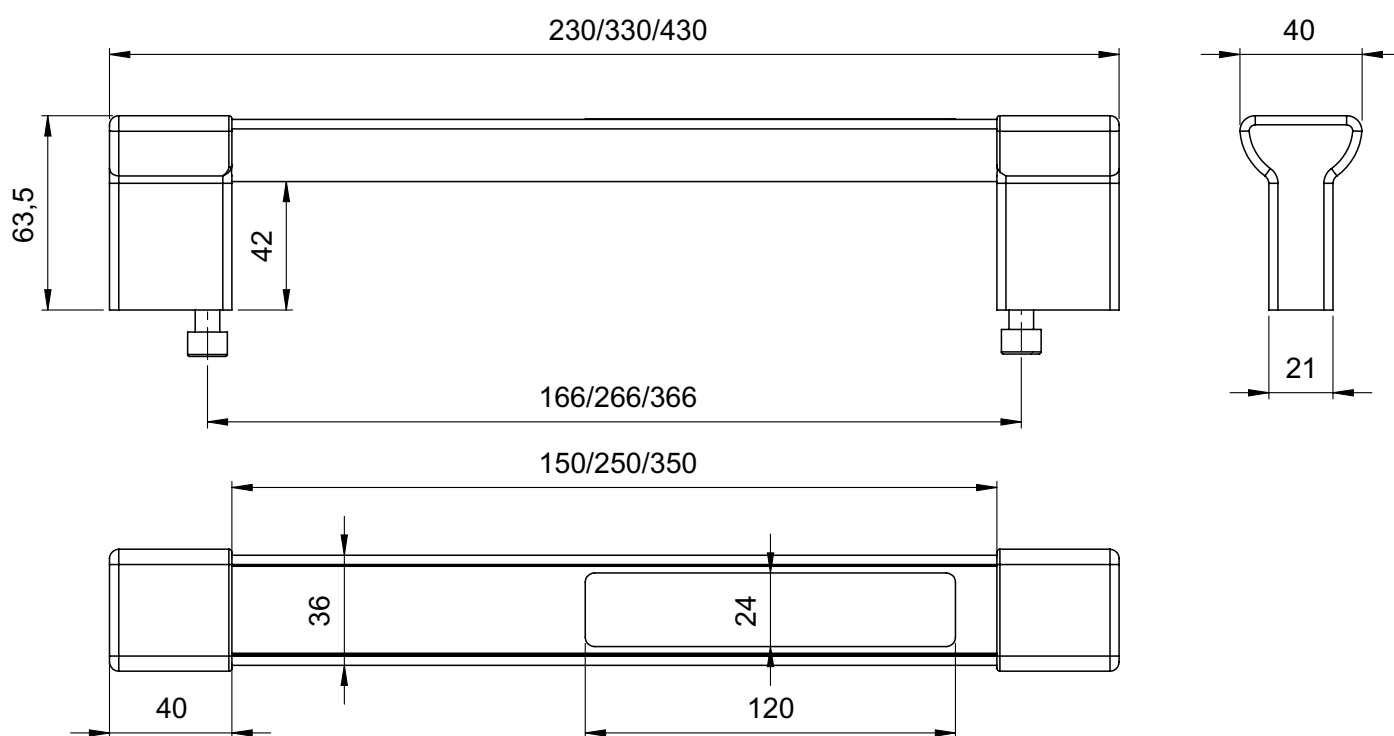
- Operating voltage 21–27 V DC
- Operating temperature max. 50°C
- Four signal colors in one device: Red/Yellow/Green/Blue
- Resistant to shock or vibration
- Rear side connection through handle shanks
- Fastening via 2x cylinder screws, hexagonal socket M8 x 55/DIN ISO 4762
- Integrated overcurrent protection
- Integrated reverse polarity protection
- IP 65 protection class



Elegant design

Multicolor

Type	Operating voltage (V DC)	Dimensions L x W x H (mm)	Connection	Part no.
Version with M12 connector 				
MG-1-TRIO M12	24	230 x 40 x 63,5	M12 connector	11556
MG-2-TRIO M12	24	230 x 40 x 63,5	M12 connector	11560
MG-3-TRIO M12	24	330 x 40 x 63,5	M12 connector	11561



Type	Operating voltage (V DC)	Dimensions L x W x H (mm)	Connection	Part no.
Version with 5 m PVC/PVC cable 				
MG-1-TRIO LC	24	230 x 40 x 63,5	5 m PVC/PVC	11565
MG-2-TRIO LC	24	230 x 40 x 63,5	5 m PVC/PVC	11566
MG-3-TRIO LC	24	330 x 40 x 63,5	5 m PVC/PVC	11567

Control and signaling devices

Series uHMI

uHMI's are compact operating and signaling devices for controlling machines and systems in industrial environments. Power contactors can be operated with the integrated semiconductor power drivers without coupling relays. The buttons are debounced via software and have a minimum on-time of 200 ms.

With a robust powder-coated aluminium housing and completely encapsulated electronics, the operating units are protected against environmental influences such as liquids and numerous chemicals such as alkalis, acids and oils. Of course, the polyester front foil used also has a very high chemical resistance (DIN 42 115).

The connection to the Operating voltage is made via a 5-pole PVC/PVC cable with 3 m length and open end.

Further front foil symbols can be offered on request.

TECHNICAL DATA

- Operating voltage 21–27 V DC
- Operating temperature max. 50°C
- Controllable LED for green illumination button "ON"
- Compact, robust and particularly flat design
- Resistant to shock or vibration
- Fastening via 2x cylinder screws, hexagonal socket M8 x 55/DIN ISO 4762
- Integrated overcurrent protection
- Integrated reverse polarity protection
- Two outputs 0.8 A/short-circuit proof
- IP 65, IP 69 K protection class
- DIN EN 60947-5-1
- Available with switch/button function



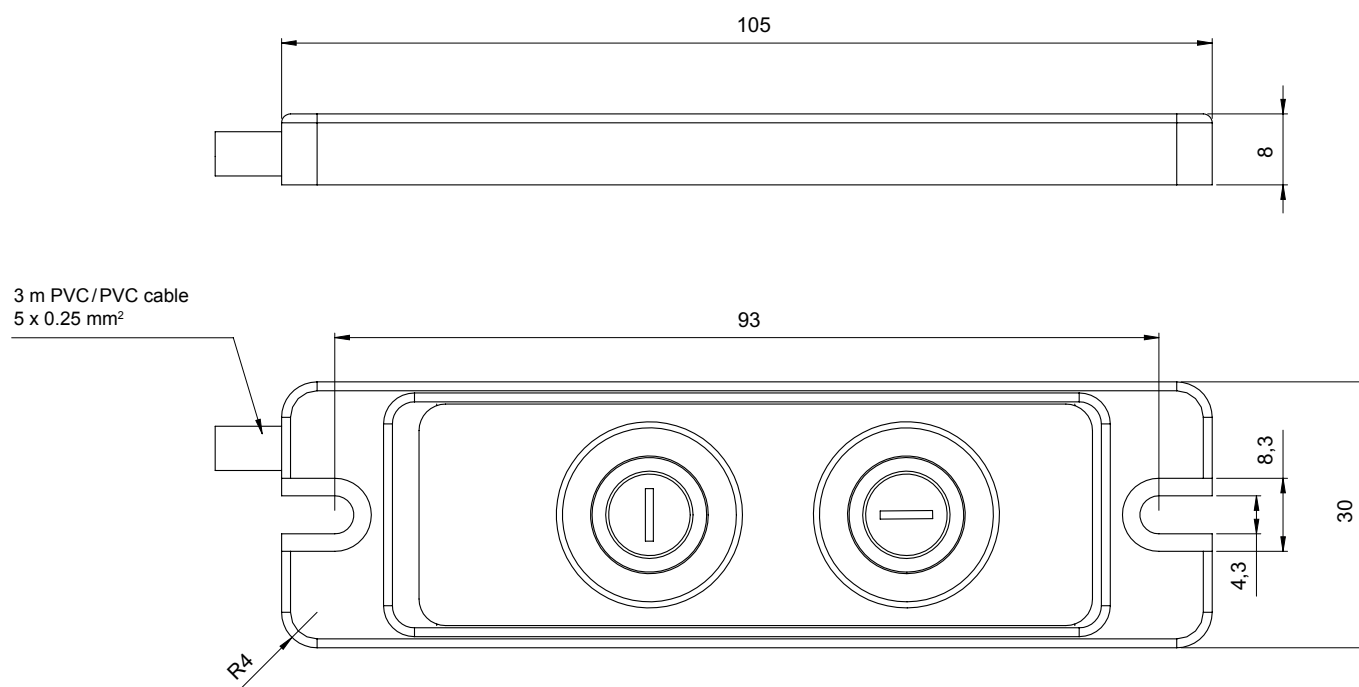
Flat design

Completely casted

Button "ON" with green signaling LED

Switching capacity 2x 0.8 A

Type	Operating voltage (V DC)	Symbols S = Switch function T = Button function	Dimensions L x W x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable 5-pole 					
uHMI ON/OFF S1T1	24	 S/T 	105 x 30 x 8	3 m PVC/PVC	11585
uHMI ON/OFF S1S1	24	 S/S 	105 x 30 x 8	3 m PVC/PVC	11586
uHMI ON/FW S1T1	24	 S/T 	105 x 30 x 8	3 m PVC/PVC	11587
uHMI ON/FW T2	24	 T/T 	105 x 30 x 8	3 m PVC/PVC	11588
uHMI ON/M S1T1	24	 S/T 	105 x 30 x 8	3 m PVC/PVC	11589



Type	Operating voltage (V DC)	Symbols S = Switch function T = Button function	Dimensions L x W x H (mm)	Connection	Part no.
Version with 3 m PVC/PVC cable 5-pole 					
uHMI ON/M T2	24	 T/T 	105 x 30 x 8	3 m PVC/PVC	11590
uHMI ON/L S1T1	24	 S/T 	105 x 30 x 8	3 m PVC/PVC	11591
uHMI ON/L S2	24	 S/S 	105 x 30 x 8	3 m PVC/PVC	11592
uHMI ON/L T2	24	 T/T 	105 x 30 x 8	3 m PVC/PVC	11593

Accessories

CONNECTION CABLES

GST18i3 cable range



Type	Length (m)	Part no.
Version with GST18i3 connector		
Schuko connection cable/GST18i3K1BS 15 50SW	3	10757
Schuko connection cable/GST18i3K1BS 15 50SW	5	10758
GST18i3K1BS 15H 30SW connecting cable	3	10755
GST18i3K1BS 15H 60SW connecting cable	6	10759
GST18i3K1BS 15H 70SW connecting cable	7	10760
GST18i3K1BS 15H 80SW connecting cable	8	10756



RST16i3 cable range



Type	Length (m)	Part no.
Version with RST16i3 connector		
RST16i3 1 m connecting cable	1	11301
RST16i3 2 m connecting cable	2	11302
RST16i3 3 m connecting cable	3	11303
RST16i3 4 m connecting cable	4	11304
RST16i3 5 m connecting cable	5	11305
Schuko connection cable/RST16i3 2,5 m	2,5	11313
RST16i3 0,5 m connecting cable	0,5	11306
RST16i3 1 m connecting cable	1	11307
RST16i3 2 m connecting cable	2	11308
RST16i3 3 m connecting cable	3	11309
RST16i3 4 m connecting cable	4	11310
RST16i3 5 m connecting cable	5	11311



RST18i3 cable range accessories



Type	Part no.
RST16i3 2x distributor	11314
RST16i3 socket sealing cap	11315
RST16i3 connector sealing cap	11343
RST16i3 2x distributor mounting plate	11316
RST16i3 S B1 ZT4 SW socket	11328
RST16i3 S B1 ZT4 SW connector	11329



M12 cable range connector

Type	Material	Weight (g)	Part no.
Version with M12 connector			
3 m straight connection cable 3-pole	PVC/PVC	120	10051
5 m straight connection cable 3-pole	PVC/PVC	190	10052
5 m straight connection cable 5-pole	PVC/PVC	200	11543
10 m straight connection cable 3-pole	PVC/PVC	360	10050



Splitter ML-VT-2x M12

The Splitter (2x M12 Female/ 1x M12 Male) allows you to connect two lamps one a load.

Type	Weight (g)	Part no.
ML-VT-2x M12	30	10667



ATTACHMENTS

Mounting angle kit

The mounting angle kit **ML-W1** enables simple flush mounting on 40 mm T-slot profile systems. ML-W1 is designed for light types ML-6-45, ML-12-45, ML-18-45, ML-24-45 and ML-36-45.

ML-W1 consists of: 1x mounting angle, black paint finish, with offset holes, 1x M6 x 14 countersunk screw, black, DIN 7991.

Type	Weight (g)	Part no.
ML-W1	50	10209



The mounting angle kit **ML-W2** enables simple flush mounting on 40 mm T-slot profile systems. ML-W2 is designed for light types ML-6, ML-12, ML-18 and ML-24.

ML-W2 consists of: 1x mounting angle, black paint finish, with offset holes, 1x M6 x 10 countersunk screw, black, DIN 7991.

Type	Weight (g)	Part no.
ML-W2	50	10210



Accessories

Magnet holder set ML-M-x

The magnet holder **ML-M-x** enables simple fixing of the machine light series ML-x, ML-x-45, ML-x-UF and ML-x-20 on ferromagnetic surfaces.

Notice: Two magnet holders are required per light. The magnets have a vertical retention force of approx. 5.5 kg.

ML-M-UF (for light series ML-x-UF), 1x magnet holder, black anodized with magnet, 1x M6 x 8 hexagonal socket screw DIN 912.

ML-M-20 (for light series ML-x-20), 1x magnet holder, black anodized with magnet, 1x M6 x 14 hexagonal socket screw DIN 912.

ML-M-45 (for light series ML-x-45): 1x magnet holder, black anodized with magnet, 1x M6 x 14 countersunk screw, black DIN 7991.

ML-M-90 (for light series ML-x): 1x magnet holder, black anodized with magnet, 1x M6 x 10 countersunk screw, black DIN 7991.

Type	Weight (g)	Part no.
ML-M-UF	40	10239
ML-M-20	40	10285
ML-M-45	40	10218
ML-M-90	40	10225



Magnet holder set AL-6-M

AL-6-M (for workplace lights IL-6-BK, AL-9-BK, AL-12-BK, workplace and machine lights AL-x-S, AL-x-D, LED spot light series ML-5-x, ML-10-x), 1x magnet holder, black anodized with 3 magnets (retention force 25 kg), 2x M6 x 22 DIN black DIN 912.

Type	Weight (g)	Part no.
AL-6-M	270	10231



Table clamp AL-6-M

ML-KL (for LED spot light series ML-5-x, ML-10-x), 1x table clamp, black anodized, 2x M6 x 14 countersunk screw, black DIN 7991.

Type	Weight (g)	Part no.
ML-KL	120	10493



Rotary attachment set WML-D

The rotary attachment can be mounted to the light series ML-x-UF and WML-x-UF. The scope of delivery includes a lamp adapter, 1x mounting bracket, 2x M6 x 8 hexagon socket screws and 1x M6 washer. **Note:** Two rotary attachment sets are required for each lamps. Not suitable for ML-36-UF/WML-36-UF.

Type	Weight (g)	Part no.
WML-D	60	10298



Angled bracket plate AL-DWB

The angled bracket plate set for the AL-x series consists of an angled bracket plate, 4x M6 x 12 flat socket head screws, 4x M6 washers, M6 slot nut with bridge.

Type	Part no.
AL-DWB	10985



Cut-off angle plate AL-AWB

The cut-off angle plate set for the AL-x series consists of a 20° cut-off angel plate, 2x M6 x 12 socket head screws, 2x M6 washers, M6 slot nut with bridge.

Type	Part no.
AL-AWB	10986



Foot plate set ML-x-P-FS

Foot plate set (for light series ML-x-P) consists of: 1x ML-x-P foot plate, 2x M6 x 14 countersunk screw. **Note:** Two foot plate sets are required for a light in each case if no protective sleeve adapter is used.

Type	Weight (g)	Part no.
ML-x-P-FS	50	10762



Accessories

Foot plate set WML-x-P-FSSA

Foot plate set for the WML-P-SSA protective sleeve adapter, 1x foot plate, 2x M6 x 14 countersunk screws, white aluminium powder coating (RAL 9006).

Type	Part no.
WML-x-P-FSSA	11031



Protective sleeve adapter WML-x-P-SSA

The protective sleeve adapter set for the WML-x-P series, protective sleeve adapter, 1x M3 x 25 hexagonal screw, 1x metal M20 x 1.5 protective sleeve screw.

Type	Part no.
WML-x-P-SSA	11030



Protective sleeve WML-x-P-SS

With a diameter of 21 mm, the metal protective sleeve protects the light cable against chip material, coolants and lubricants. IP 40 protection class, supplied and packaged according to the customer's wishes.

Type	Part no.
WML-x-P-SS	11032



CONTROL ACCESSORIES

DIMM Module ML-PWM

The DIMM module **ML-PWM** is designed for dimming our LED machine lights with a high impedance input. The DIMM module is fitted into a thin top-hat rail housing and can thus be fitted in a space-saving manner into control cabinets with top-hat rail systems.

Typ	Weight (g)	Part no.
ML-PWM	60	10647



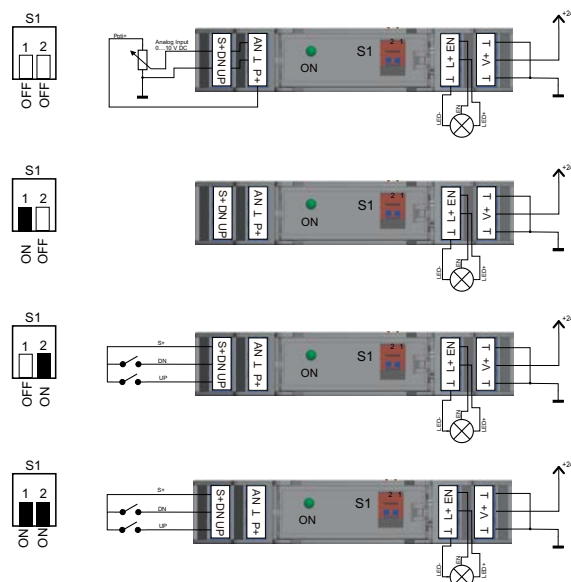
Functions:

Analogue: The lights can be dimmed from approx. 8% - 100% in an infinitely variable manner using a potentiometer > 10 kOhm or an external analogue signal of 1.5 - 9 V DC to "ON". The LED is permanently lit.

Ramp time: When the DIMM module is switched on, the LED lights will be smoothly switched to a dimming level of 0% - 100% in a ramp time of 0.5 seconds. The LED is permanently lit.

Digital: The lights are switched on at a default dimming level of approx. 85%. The dimming level can be set in 8 stages from approx. 10% - 100% by sending external sequential switching impulses to "UP" and "DN". Simultaneous impulses sent to UP/DN will switch the lights on or off. The LED is lit if the PWM is switched on. If the lights are switched off, the LED also goes out.

Levels: Depending on the input signal sent to "UP" and "DN", the connected lights can be dimmed in four levels: 0% / 25% / 75% / 100%. The LED is lit if the PWM is switched on. If the lights are switched off (0%), the LED goes out.



AL-Bedienfeld UP/DN

The **AL-Bedienfeld UP/DN** is available as an optional accessory for our DIMM module ML-PWM. This enables manual dimming of one or more luminaires at a central point.

With a robust aluminium housing and weatherproof, UV-resistant and crystal-clear PUR encapsulation, the AL-Bedienfeld is protected against environmental influences and numerous chemicals such as alkalis, acids and oils. The front foil used is resistant to solvents and chemicals.

Type	Weight (g)	Part no.
AL-Bedienfeld UP/DN	120	10947



Accessories

POWER SUPPLY UNITS

Power supply SN-x-M12

SN-12-M12, 24 V/0,5 A, 1,5 m cable/M12 connector socket

SN-24-M12, 24 V/1 A, 1,5 m cable/M12 connector socket

Type	Weight (g)	Part no.
SN-12-M12	110	10255
SN-24-M12	155	10256



Desktop power supply SN-x-M12

TN-36-M12, 24 V/1,5 A, M12 connector socket

TN-72-M12, 24 V/2,5 A, M12 connector socket

TN-90-M12, 24 V/3,6 A, M12 connector socket

TN-120-M12, 24 V/5 A, M12 connector socket

Type	Weight (g)	Part no.
TN-36-M12	300	10252
TN-72-M12	400	10253
TN-90-M12	500	10254
TN-120-M12	600	10878

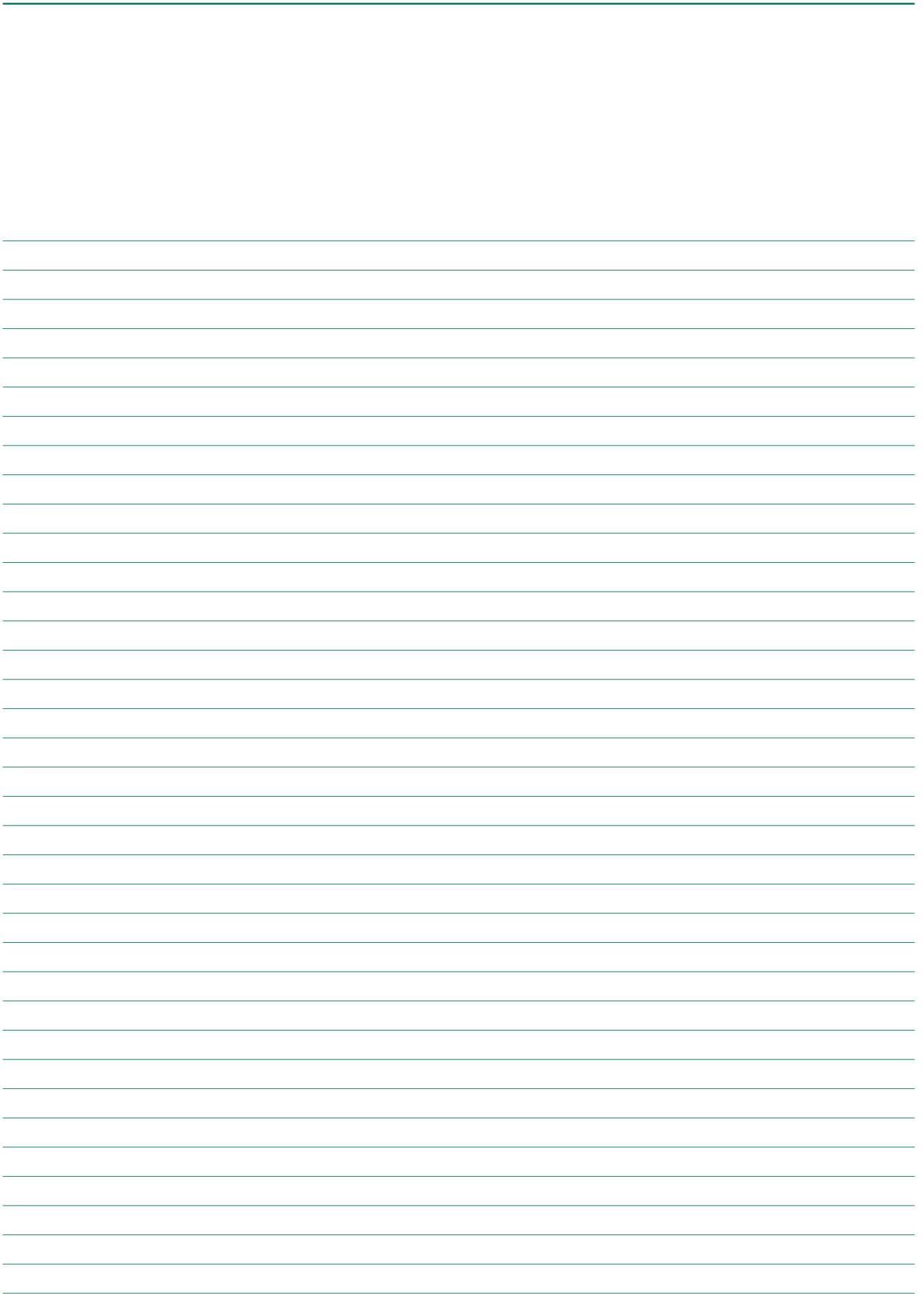


Information

NECESSARY DENSITY OF LIGHT AFTER DIN EN 12464

Type of the space or activity (Examples)	Density of light in lux
- Traffic areas and corridors - Break room - Supply and stockrooms (not constantly filled)	100
- Loading ramps and load areas - Drives with passenger traffic - Control posts	150
- Rough assembly works - Casting cleaning shop, Maschinenformerei, sand preparation - Process from heavy sheet metals (starting from 5 mm) - Switch space and house-technical systems - Open-die forging - Cafeterias, tea kitchens - Clothes, wash rooms, toilets, baths	200
- Medium-fine assembly works - Process from light sheet metals (up to 5 mm) - Dispatch and packing areas - Rough and middle machine works (tolerances starting from 0.1 mm) - Galvanize - Weld, die forging, hand and coring - Control stands in rolling, hut and steel plants - Production plants with constant manual interventions	300
- Precise machine works, loops (tolerances under 0.1 mm) - Precise assembly works - Building of bodywork and assembly	500
- Surface processing and lacquer finish - Much very exact assembly works - Manufacture from tools and cutting tools - Lacquer finish, squirting and sharpening cabs in the automotive manufacture - Marking out and check	750
- Paint: Correcting and inspection in the automotive manufacture - Tools appliance and building of gadgets - Precision and micro mechanics	1,000

NOTES



Industrial, signal
and system lights

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