



## Laser light sensor VLM350-F280-R4-1101

- Resolution 1280 x 960 pixel
- Comparison of up to 32 height profiles
- Output of X/Z offset
- Intelligent exposure time control
- Laser class 1, eyesafe
- Data Matrix control codes for parameterization

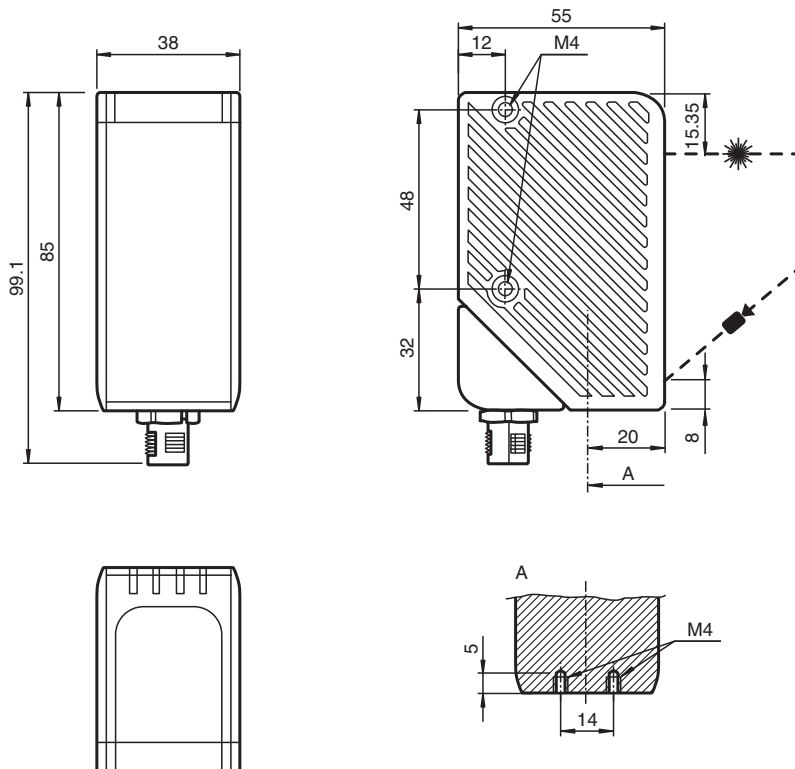
Laser light sensor for profile matching; Comparison of up to 32 height profiles; Output of X/Z offset; Resolution: 1280 x 960 pixel; Measuring range: X = 40 ... 160 mm, Z = 60 ... 350 mm; Scan rate: 30 s-1; 2 digital outputs; RS-485 interface



### Function

The SmartRunner Matcher compares current height profiles with a previously taught-in height profile. The Matcher is based on innovative SmartRunner technology and combines the light section method for detecting height profiles with a 2-D vision sensor. The light section method involves projecting a laser line onto an object. This is then detected by a camera at a specific angle. A height profile is then created using the triangulation principle. This innovative laser technology provides reliable measurements on different surfaces.

### Dimensions



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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**PEPPERL+FUCHS**

## Technical Data

### General specifications

Measurement range	X = 40 ... 160 mm ; Z = 60 ... 350 mm
Light source	laser diode
Light type	red laser + Integrated LED lightning red 650 nm
Laser nominal ratings	
Note	VISIBLE LASER RADIATION , DO NOT STARE INTO BEAM DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS
Laser class	1
Wave length	Measuring laser: 660 nm
Pulse length	Measuring laser: 0.5 ms
Maximum optical power output	Measuring laser: 15 mW
Laser monitoring	The safety system switches off the laser when the laser current is too high
Scan rate	30 s <sup>-1</sup>
Resolution	X>0.25 mm; Z>0.2 mm at 60 mm distance X>0.5 mm; Z>0.6 mm at 200 mm distance X>0.9 mm; Z>1.3 mm at 350 mm distance

### Functional safety related parameters

MTTF <sub>d</sub>	20 a
Mission Time (T <sub>M</sub> )	10 a
Diagnostic Coverage (DC)	0 %

### Indicators/operating means

Operation indicator	LED green
Diagnostics indicator	LED yellow / red
Function indicator	Trigger: LED yellow ; object detected : LED red / green
Control elements	2 push-buttons

### Electrical specifications

Operating voltage	U <sub>B</sub>	24 V ± 20 % , PELV
No-load supply current	I <sub>0</sub>	max. 250 mA
Power consumption	P <sub>0</sub>	max. 6 W , Outputs without load

### Interface

Interface type	RS 485 interface
Physical	Switchable terminal resistor
Protocol	binary code
Transfer rate	38400 ... 230400 Bit/s

### Input

Input voltage	24 V
Number/Type	External triggering + 1 Input
Switching threshold	low: < 2.5 V, high: > 8 V

### Output

Number/Type	2 digital outputs
Switching type	PNP
Switching voltage	24 V
Switching current	150 mA each output

### Compliance with standards and directives

Standard conformity	
Noise immunity	EN 61000-6-2:2005
Emitted interference	EN 61000-6-4:2007/A1:2011
Degree of protection	EN 60529
Shock and impact resistance	EN 60068-2-27:2009
Laser class	IEC 60825-1:2007

### Approvals and certificates

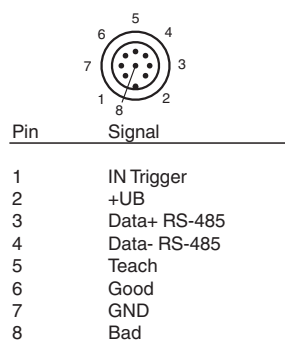
UL approval	cULus Listed, Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V

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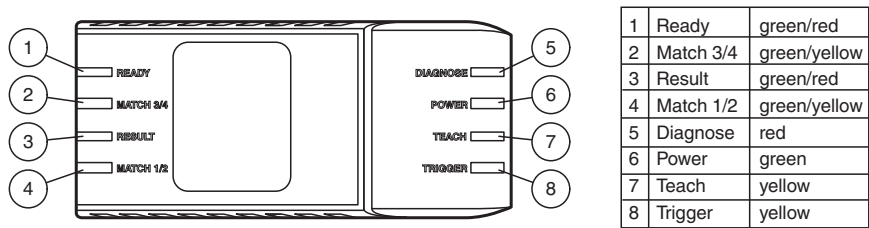
Technical Data

Approvals		CE
<b>Ambient conditions</b>		
Operating temperature		-20 ... 45 °C (-4 ... 113 °F) , (noncondensing; prevent icing on the lens!)
Storage temperature		-20 ... 70 °C (-4 ... 158 °F)
<b>Mechanical specifications</b>		
Housing width		38 mm
Housing height		85 mm
Housing depth		55 mm
Degree of protection		IP67
Connection		8-pin, M12 x 1 connector ( supply + RS485 + Inputs/Outputs ) ; can be rotated 90° ; Grounding : Grounding clip for PCV system
Material		
Housing		PC/ABS
Optical face		Plastic pane
Mass		approx. 125 g
Tightening torque, fastening screws		max. 2 Nm
<b>General information</b>		
Note		<b>Security Instructions:</b> <ul style="list-style-type: none"><li>- Read the operating instructions before attempting commissioning</li><li>- Installation, connection and adjustments should only be undertaken by specialist personnel</li><li>- Not a safety component in accordance with the EU Machinery Directive</li></ul>

Connection



Assembly














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## Safety Information

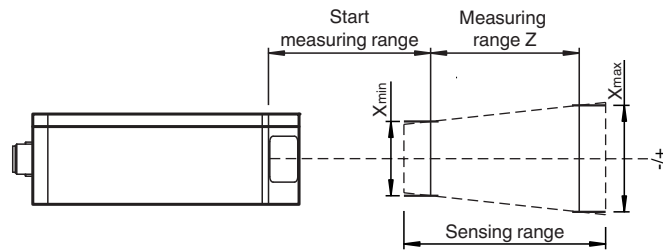


## Accessories

	<b>V19-G-5M-PUR-ABG</b>	Female cordset single-ended M12 straight A-coded, 8-pin, PUR cable grey, shielded
	<b>VLX-MB2</b>	Mounting bracket
	<b>VLX-MB1</b>	Mounting bracket
	<b>PCV-USB-RS485-Converter Set</b>	USB to RS 485 interface converter
	<b>V19-G-BK0,6M-PUR-U-V1-G-SRMAT</b>	Cordset for SmartRunner Matcher, M12 to M12, 8/4-pin, PUR cable
	<b>VLX-F231-B6</b>	Interface module with PROFIBUS interface for SmartRunner
	<b>VLX-F231-B17</b>	Interface module with PROFINET interface for SmartRunner
	<b>VLX-F231-B21</b>	Interface module with EtherCAT interface for SmartRunner
	<b>VLX-F231-B25</b>	Interface module with EtherNet/IP interface for SmartRunner
	<b>VLX-F280-C</b>	Weld slag cover model
	<b>VLX-F280-C-GLASS</b>	Replacement glass for SmartRunner protective housing

## Installation Conditions

### Measuring range



## Safety Information



**LASERLICHT  
LASER LIGHT**

**LASER KLASSE 1  
CLASS 1 LASER PRODUCT**

## Safety Information

### Laser Class 1 Information

The irradiation can lead to irritation especially in a dark environment. Do not point at people!

Maintenance and repairs should only be carried out by authorized service personnel!

Attach the device so that the warning is clearly visible and readable.

The warning accompanies the device and should be attached in immediate proximity to the device.

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.