



## Laser light sensor VLM700-F280-R4-1102

- 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

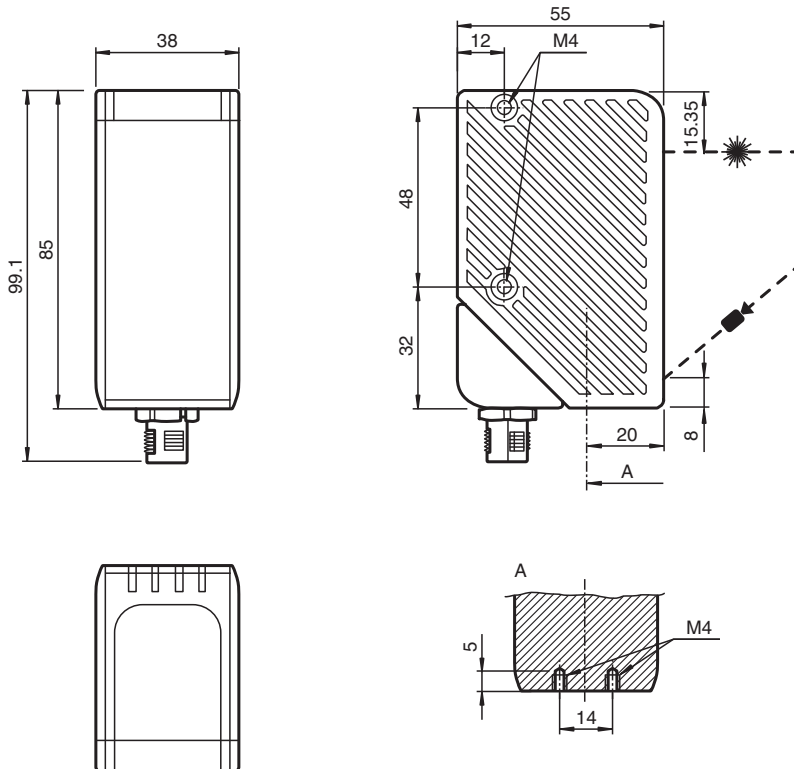
Laser light sensor for profile matching; Comparison of up to 32 height profiles; Output of X/Z offset; Resolution: 1280 x 960 pixels; Measuring range: X = 60 ... 300 mm, Z = 100 ... 700 mm; Scan rate: 15 s-1; 2 digital outputs; RS-485 interface



### 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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## Technical Data

General specifications	
Measurement range	X = 60 ... 300 mm ; Z = 100 ... 700 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	15 s <sup>-1</sup>
Resolution	X>0.44 mm; Z>0.4 mm at 60 mm distance X>1.0 mm; Z>2.0 mm at 400 mm distance X>1.8 mm; Z>11.1 mm at 700 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

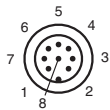
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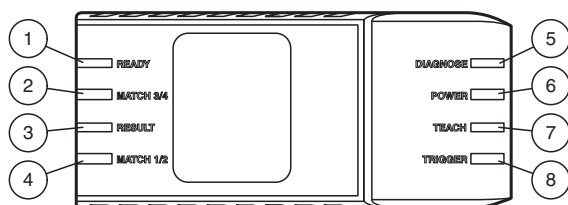
Approvals	CE
<b>Ambient conditions</b>	
Operating temperature	-20 ... 45 °C (-4 ... 113 °F) , (noncondensing; prevent icing on the lens!)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)
<b>Mechanical specifications</b>	
Housing width	38 mm
Housing height	85 mm
Housing depth	55 mm
Degree of protection	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



Pin	Signal
1	IN Trigger
2	+UB
3	Data+ RS-485
4	Data- RS-485
5	Teach
6	Good
7	GND
8	Bad

## Assembly














1	Ready	green/red
2	Match 3/4	green/yellow
3	Result	green/red
4	Match 1/2	green/yellow
5	Diagnose	red
6	Power	green
7	Teach	yellow
8	Trigger	yellow

## 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

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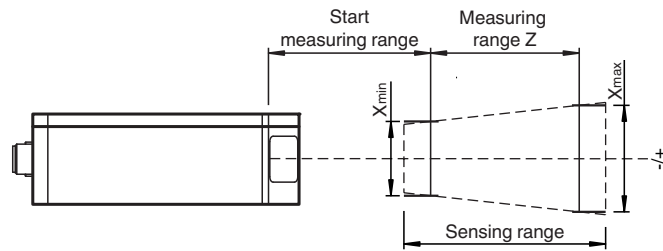
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## Installation Conditions

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.