



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

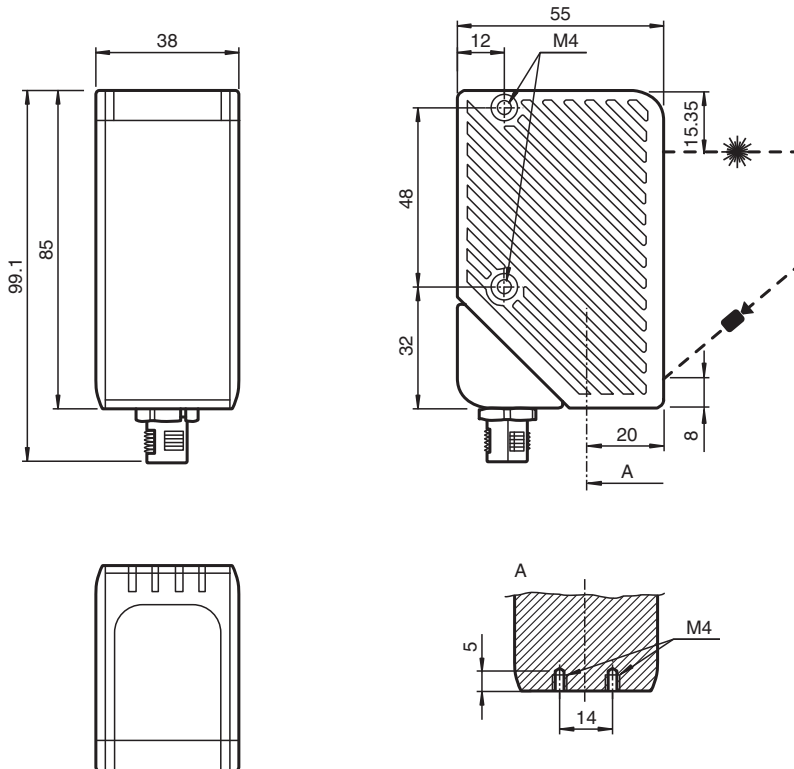
Laser light sensor for profile matching; Comparison of up to 32 height profiles; Output of X/Z offset; Resolution: 1280 x 960 pixels; Measuring range: X = 60 ... 300 mm, Z = 100 ... 700 mm; Scan rate: 15 s-1; 2 digital outputs; RS-485 interface



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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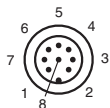
Technical Data

General specifications		
Measuring 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	
Beam divergence	± 16 °	
Pulse length	< 3 ms	
Repetition rate	< 30 Hz	
Maximum optical power output	15 mW	
max. pulse energy	< 4.5 µJ	
Laser monitoring	The safety system switches off the laser when the laser current is too high	
Scan rate	15 s ⁻¹	
Resolution	X>0.44 mm; Z>0.4 mm at 100 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 _d	20 a	
Mission Time (T _M)	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 _B	24 V ± 20 % , PELV
No-load supply current	I ₀	max. 250 mA
Power consumption	P ₀	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 60825-1:2014	

Technical Data

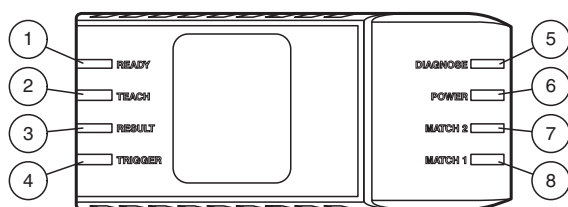
Approvals and certificates	
UL approval	cULus Listed, Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V
Approvals	CE
Ambient conditions	
Operating temperature	-20 ... 45 °C (-4 ... 113 °F) , (noncondensing; prevent icing on the lens!)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)
Mechanical specifications	
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
Dimensions	
Height	85 mm
Width	38 mm
Depth	55 mm
General information	
Note	<p>Security Instructions:</p> <ul style="list-style-type: none"> - Read the operating instructions before attempting commissioning - Installation, connection and adjustments should only be undertaken by specialist personnel - Not a safety component in accordance with the EU Machinery Directive

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

Safety Information

**CLASS 1
LASER PRODUCT**

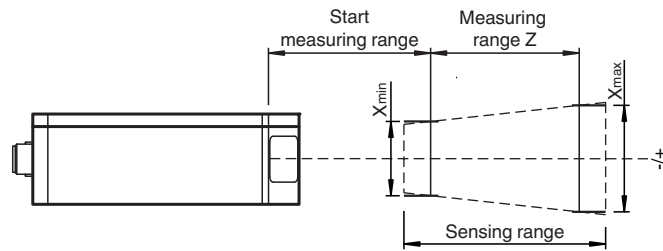
IEC 60825-1: 2007 certified.

Complies with 21 CFR
1040.10 and 1040.11 except
for deviations pursuant to
Laser Notice No. 50,
dated June 24, 2007

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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.