



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

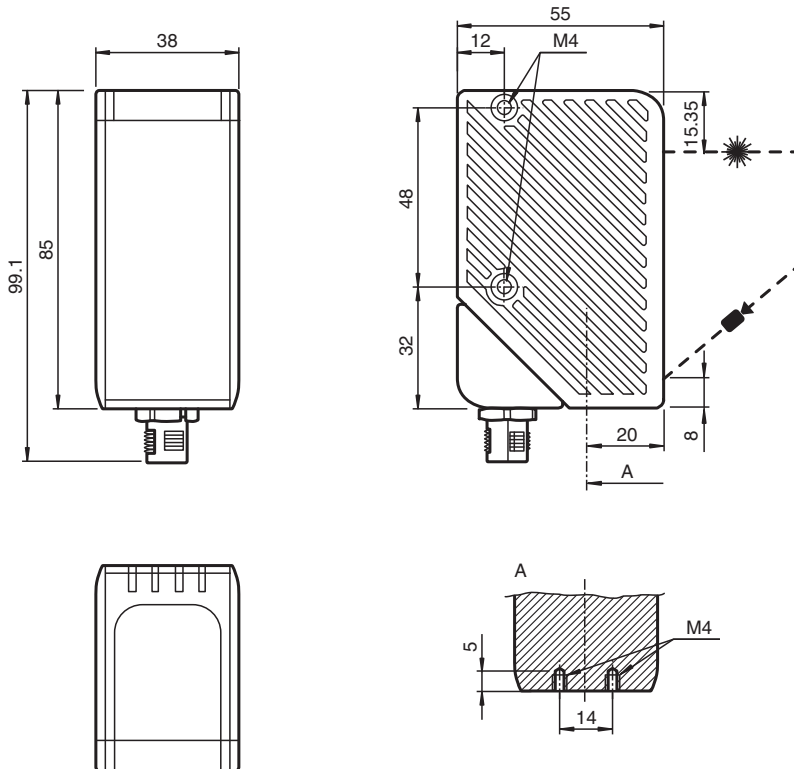
Laser light sensor for profile matching; Comparison of up to 32 height profiles; Output of X/Z offset; Resolution: 1280 x 960 pixel; Measuring range: X = 40 ... 160 mm, Z = 60 ... 350 mm; Scan rate: 30 s-1; 2 digital outputs; RS-485 interface



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



Release date: 2025-03-31 Date of issue: 2025-03-31 Filename: 284586-100004_eng.pdf

Technical Data

General specifications

Measuring 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
Beam divergence	$\pm 16^\circ$
Pulse length	< 3 ms
Repetition rate	< 30 Hz
Maximum optical power output	15 mW
max. pulse energy	< 4.5 μ J
Laser monitoring	The safety system switches off the laser when the laser current is too high
Scan rate	30 s ⁻¹
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 _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 \pm 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

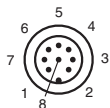
Compliance with standards and directives

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

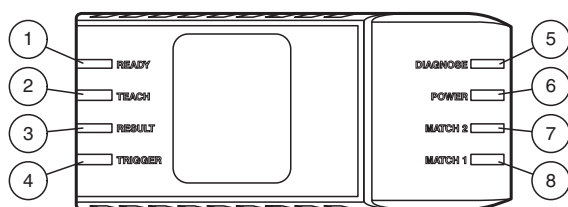
Approvals and certificates	
UL approval	cULus Listed, Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V
Approvals	CE
Ambient conditions	
Operating temperature	-20 ... 45 °C (-4 ... 113 °F) , (noncondensing; prevent icing on the lens!)
Storage temperature	-20 ... 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**

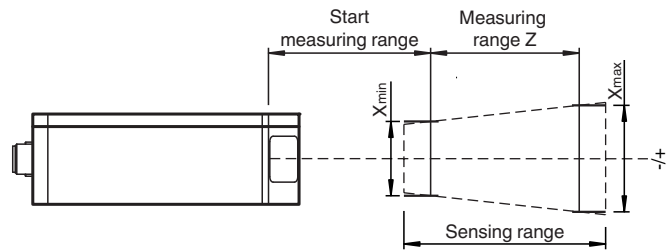
IEC 60825-1: 2007 certified.

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

Release date: 2025-03-31 Date of issue: 2025-03-31 Filename: 284586-100004_eng.pdf

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.