



**Model Number**

VLM350-F280-R4-1001

**Features**

- 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

**Laserlabel**

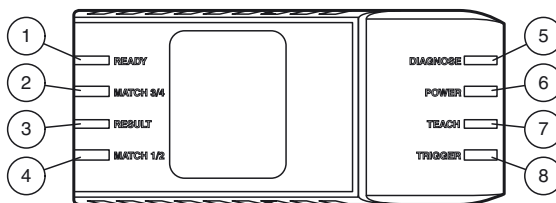
**CLASS 1  
LASER PRODUCT**  
IEC 60825-1: 2007 certified.  
Complies with 21 CFR  
1040.10 and 1040.11 except  
for deviations pursuant to  
Laser Notice No. 50,  
dated June 24, 2007

Release date: 2019-01-10 14:35 Date of issue: 2019-01-10 284586-100003\_eng.xml

**Function**

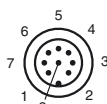
The SmartRunner Matcher compares current height profiles with a previously taught-in height profile. The Matcher is based on innovative SmartRunner technology and combines the light section method for detecting height profiles with a 2-D vision sensor. The light section method involves projecting a laser 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.

**Indicating / Operating means**



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

**Electrical connection**



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

**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	Measurement laser: 660 nm
Pulse length	Measurement laser: 0.5 ms
Maximum optical power output	Measurement laser: 15 mW
Laser monitoring	The safety system switches off the laser when the laser current is too high
Scan rate	10 s <sup>-1</sup>
Resolution	X > 0.44 mm ; Z > 0.4 mm at 60 mm read 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

**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	≤ 2 Nm

**General information**

Note	<p><b>Security Instructions:</b></p> <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>
------	--

**Compliance with standards and directives**

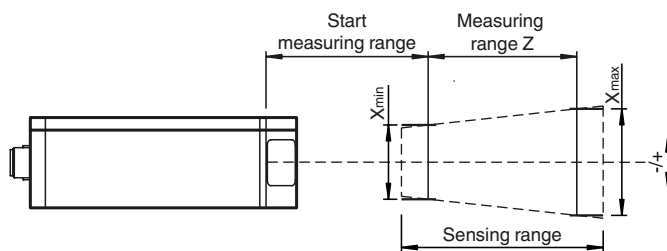
Standard conformity	
Noise immunity	EN 61000-6-2:2005
Emitted interference	EN 61000-6-4:2007/A1:2011
Degree of protection	EN 60529
Shock and impact resistance	EN 60068-2-27:2009
Laser class	IEC 60825-1:2007

**Approvals and certificates**

CCC approval	CCC approval / marking not required for products rated ≤36 V
Approvals	CE

**Notes**

Measuring range



**Accessories**

**V19-G-5M-PUR-ABG**

Female cordset, M12, 8-pin, shielded, PUR cable

**VLX-MB2**

Mounting bracket

**VLX-MB1**

Mounting bracket

**PCV-USB-RS485-Converter Set**

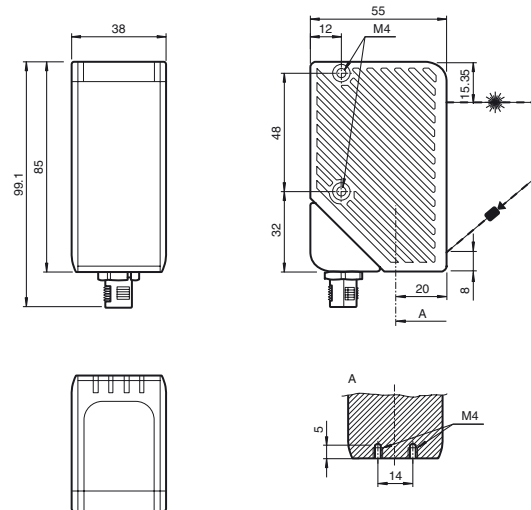
USB to RS 485 interface converter

**V19-G-BK0,6M-PUR-U-V1-G-SRMAT**

Cordset for SmartRunner Matcher, M12 to M12, 8/4-pin, PUR cable

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

## Dimensions



## Laser notice laser class 1

- 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.