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

Model Number

VLM350-F280-2E2-1000

Features

- Intelligent exposure time control
- Laser class 1, eyesafe
- Data Matrix control codes for parameterization

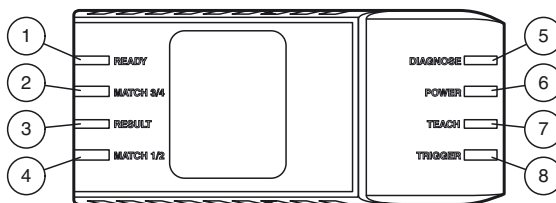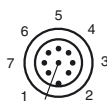### Laserlabel

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

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	$10 \ s^{-1}$
Resolution	X > 0.44 mm ; Z > 0.4 mm at 60 mm read 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

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

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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

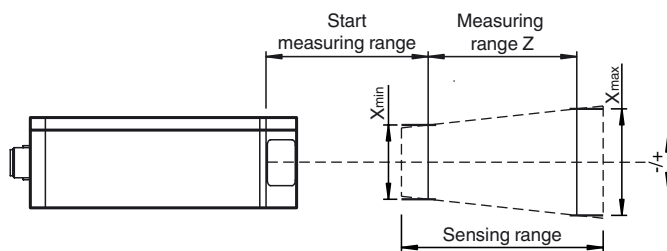|	
Note	**Security Instructions:** - Read the operating instructions before attempting commissioning - Installation, connection and adjustments should only be undertaken by specialist personnel - Not a safety component in accordance with the EU Machinery Directive

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

Accessories

V19-G-5M-PUR-ABG
Female cordset, M12, 8-pin, shielded, PUR cable

VLX-MB2
Mounting bracket

VLX-MB1
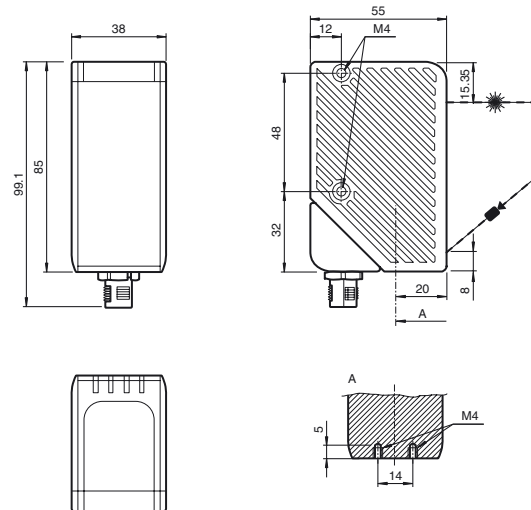Mounting bracket

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

Notes

Measuring range

Start measuring range — Measuring range Z — X_{min} — X_{max} — -/+ — Sensing range

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

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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.

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

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