Laser light sensor
VLM350-F280-2E2-1000

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

Laser light sensor for profile matching; Resolution: 752 x 480 Pixel; Measuring range: X = 40 ... 160 mm, Z = 60 ... 350 mm; Scan rate: 10 s-1; 2 digital outputs, RS-485 interface

$C \in$ ⚠

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.

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

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

Pepperl+Fuchs Group	USA: +1 330 486 0001	Germany: +49 621 776 1111	Singapore: +65 6779 9091	
www.pepperl-fuchs.com	fa-info@us.pepperl-fuchs.com	fa-info@de.pepperl-fuchs.com	fa-info@sg.pepperl-fuchs.com	PEPPERL+FUCHS

1

Dimensions

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

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".
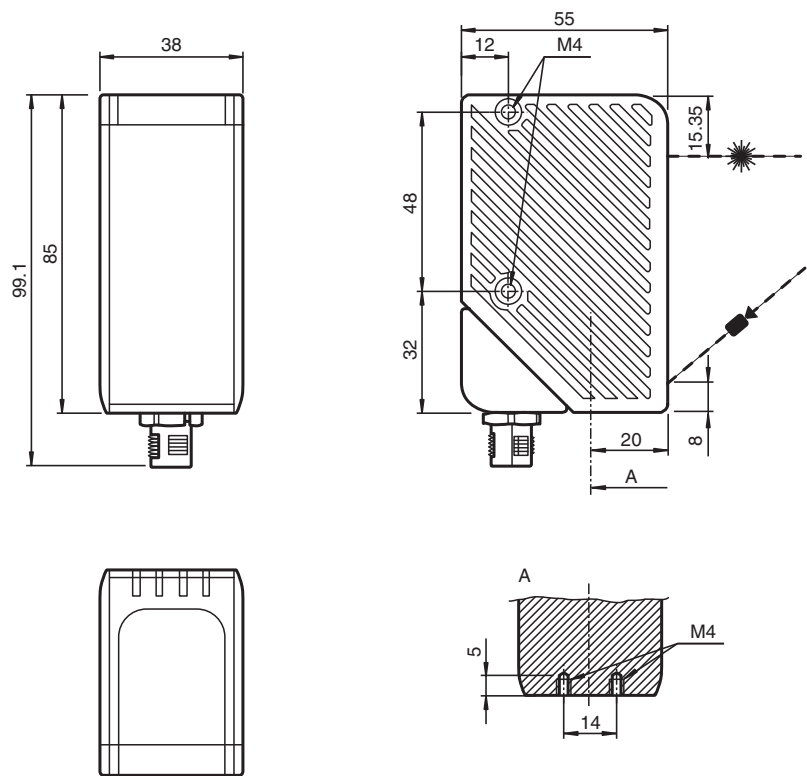
Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS

2

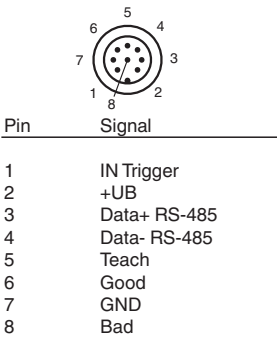## Technical Data

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 60825-1:2007
Approvals and certificates			
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
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

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

Pepperl+Fuchs Group	USA: +1 330 486 0001	Germany: +49 621 776 1111	Singapore: +65 6779 9091
www.pepperl-fuchs.com	fa-info@us.pepperl-fuchs.com	fa-info@de.pepperl-fuchs.com	fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS

3

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

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
	VLX-F231-B6	Interface module with PROFIBUS interface for SmartRunner
	VLX-F231-B17	Interface module with PROFINET interface for SmartRunner
	VLX-F231-B21	Interface module with EtherCAT interface for SmartRunner
	VLX-F231-B25	Interface module with EtherNet/IP interface for SmartRunner

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

Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776 1111   Singapore: +65 6779 9091
www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com fa-info@de.pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS   4

Installation Conditions

Measuring range
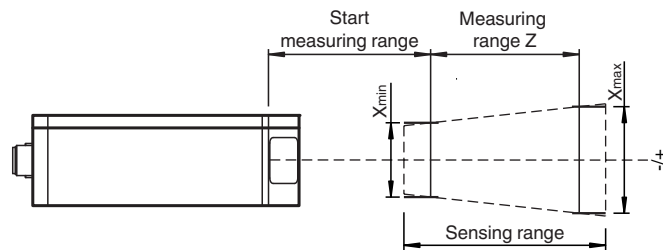
Accessories

Other suitable accessories can be found at www.pepperl-fuchs.com

Safety Information
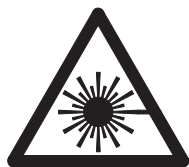
LASERLICHT
LASER LIGHT

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.

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

Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776 1111   Singapore: +65 6779 9091
www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com   fa-info@de.pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS   5