



# Vision Sensor

## PHA500-F200A-R2



- Detects the position of an index hole
- Large capture range
- High operating range
- Integrated contrast compensation
- Compact design
- Integrated illumination

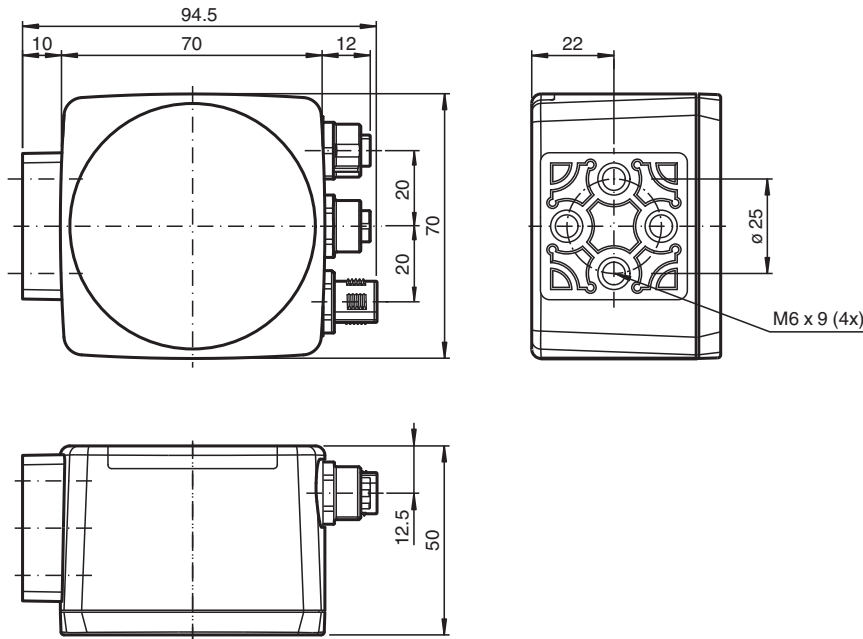
Precision positioning on hole in the 70 mm x 70 mm housing



### Function

The sensor has been developed for the precision positioning of high-bay racking operating equipment. It detects circular holes in the racking structure and their positional deviation from the nominal position. The sensor operates in two dimensions.

### Dimensions



Release date: 2024-02-07 Date of issue: 2024-02-07 Filename: 237222\_eng.pdf

### Technical Data

#### General specifications

Light source	LED
Light type	Integrated LED lightning (infrared)
Object size	Hole diameter 15 mm
Response delay	100 ms
Read distance	500 mm

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

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## Technical Data

Depth of focus		± 50 mm
Capture range		max. 90 mm x 90 mm
<b>Nominal ratings</b>		
Camera		
Type		CMOS , Global shutter
Number of pixels		752 x 480 pixels
Gray scale		256
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		65 a
Mission Time (T <sub>M</sub> )		10 a
Diagnostic Coverage (DC)		0 %
<b>Indicators/operating means</b>		
Operation indicator		LED green: Ready for operation
Function indicator		4 x LED yellow: +X, -X, +Y, -Y
Control elements		none
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	24 V DC ± 15% , PELV
No-load supply current	I <sub>0</sub>	max. 250 mA
Power consumption	P <sub>0</sub>	6 W
<b>Interface</b>		
Interface type		serial , RS 232
Transfer rate		max. 115.2 kBit/s
Cable length		max. 30 m
<b>Interface 1</b>		
Interface type		Ethernet
Protocol		TCP/IP
Transfer rate		100 MBit/s
Cable length		max. 30 m
<b>Input</b>		
Input voltage		to be applied externally 24 V ± 15% PELV
Number/Type		Cycle stop, relative stroke
Input current		1.6 mA at 24 V
Switching threshold		low: < 10 V, high: > 15 V
Cable length		max. 30 m
<b>Output</b>		
Switching type		PNP , short-circuit/overload protected
Signal output		+X, -X, +Y, -Y
Switching voltage		24 V
Switching current		max. 100 mA each output
Cable length		max. 30 m
<b>Conformity</b>		
Shock resistance		EN 60068-2-27:2009
Vibration resistance		EN 60068-2-6:2008
Emitted interference		EN 61000-6-4:2007+A1:2011
Noise immunity		EN 61326-1:2013
Photobiological safety		exempt group according to EN 62471:2008
<b>Approvals and certificates</b>		
CE conformity		CE
CCC approval		CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>		
Operating temperature		0 ... 60 °C (32 ... 140 °F) , -20 ... 60 °C (-4 ... 140 °F) (noncondensing; prevent icing on the lens!)
Storage temperature		-20 ... 85 °C (-4 ... 185 °F)

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**Technical Data**

Relative humidity	90 % , noncondensing
Shock resistance	< 50 g
Vibration resistance	< 3 G , 11 ... 200 Hz
<b>Mechanical specifications</b>	
Degree of protection	IP67
Connection	8-pin, M12x1 connector, standard (supply+IO) , 5-pin, M12x1 socket, standard (RS 232) , 4-pin, M12x1 socket, standard (LAN)
Material	
Housing	PC/ABS
Optical face	Plastic pane
Installation	4 x M6 threading
Mass	approx. 160 g
Dimensions	
Height	70 mm
Width	70 mm
Depth	50 mm

**Connection**

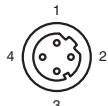
**RS 232**



Pin	Signal
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- 1 +UB
- 2 TX RS232
- 3 GND
- 4 RX RS232
- 5 NC

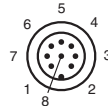
**LAN**



Pin	Signal
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- 1 TX+ Ethernet
- 2 RX+ Ethernet
- 3 TX- Ethernet
- 4 RX- Ethernet

**24 V DC+IO**



Pin	Signal
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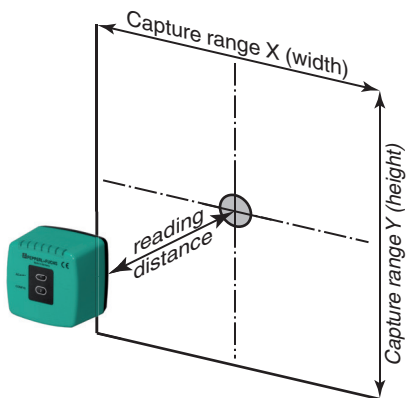
- 1 OUT +X
- 2 +UB
- 3 OUT -Y
- 4 OUT +Y
- 5 OUT -X
- 6 IN 1
- 7 GND
- 8 IN 2

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**Assembly**



**Characteristic Curve**



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