

Vision Sensor PHA400-F200-B17-V1D

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

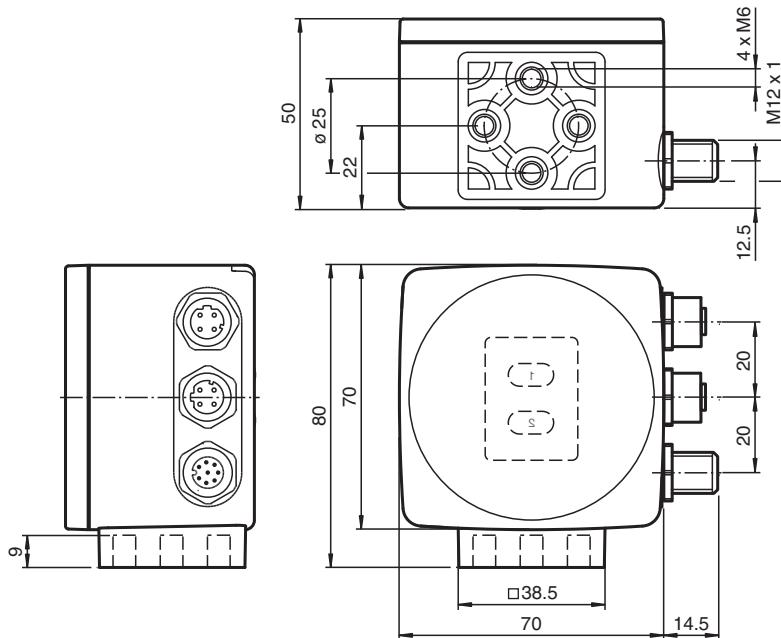
Precision positioning on hole in the 70 mm x 70 mm housing



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



Technical Data

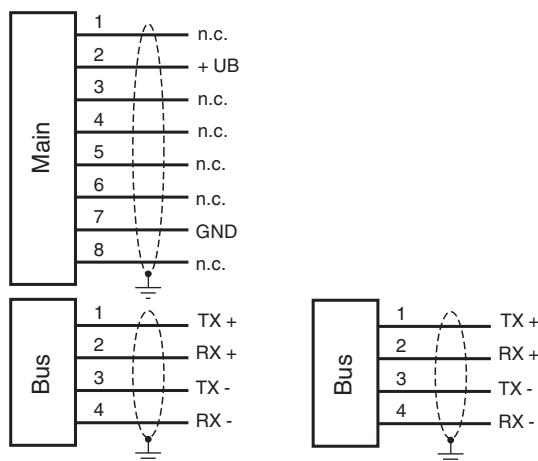
General specifications

Light type	Integrated LED lightning (infrared)
Object size	Hole diameter 13 mm
Response delay	100 ms
Read distance	400 mm
Depth of focus	± 50 mm

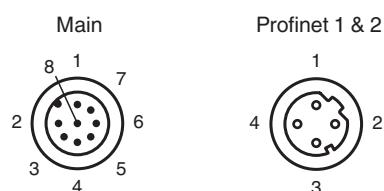
Technical Data

Capture range			max. 120 mm x 100 mm
Nominal ratings			
Camera			
Type			CMOS , Global shutter
Number of pixels			752 x 480 pixels
Gray scale			256
Functional safety related parameters			
MTTF _d			95 a
Mission Time (T _M)			10 a
Diagnostic Coverage (DC)			0 %
Indicators/operating means			
Operation indicator			LED green: Ready for operation
Function indicator			7 LEDs (communication, alignment aid, status information)
Control elements			Button for parameterization
Electrical specifications			
Operating voltage	U _B	24 V DC +/- 15 %, PELV	
No-load supply current	I ₀	max. 400 mA	
Power consumption	P ₀	6 W	
Interface			
Interface type			100 BASE-TX PROFINET
Protocol			PROFINET IO Real-Time (RT) Conformance class A
Transfer rate			100 MBit/s
Interface 2			
Interface type			USB (serial comport)
Transfer rate			... 12000 kB/s
Conformity			
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 61000-6-2:2005
Photobiological safety			exempt group according to EN 62471:2008
Approvals and certificates			
CE conformity			CE
CCC approval			CCC approval / marking not required for products rated ≤36 V
Ambient conditions			
Operating temperature			0 ... 60 °C (32 ... 140 °F) , -20 ... 60 °C (-4 ... 140 °F) (noncondensing; prevent icing on the lens!)
Storage temperature			-30 ... 85 °C (-22 ... 185 °F)
Relative humidity			90 % , noncondensing
Mechanical specifications			
Degree of protection			IP67
Material			
Housing			PC/ABS
Optical face			Plastic pane
Installation			4 x M6 threading
Mass			approx. 200 g
Dimensions			
Height			70 mm
Width			70 mm
Depth			50 mm

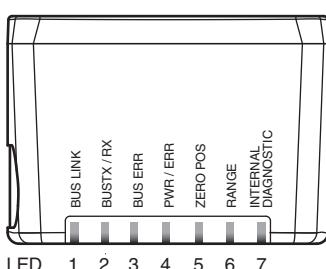
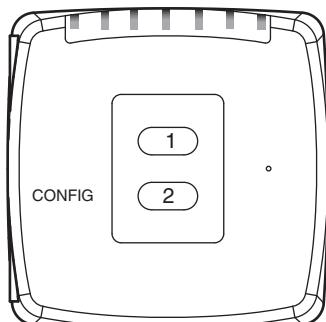
Connection



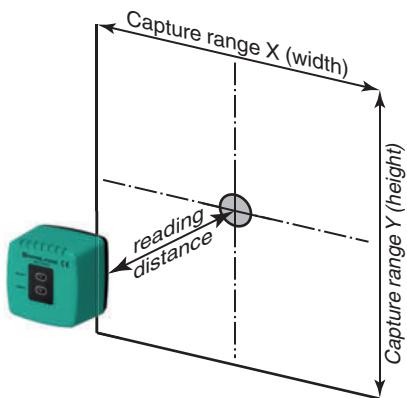
Connection Assignment



Indication



Characteristic Curve



Additional Information

General

The PHA... Vision Sensor has been developed for the rack fine positioning of stock feeders. This device detects circular holes in the rack structure and determines the position deviation of these holes in relation to the target position. The Vision Sensor operates in two dimensions.

Mounting and Commissioning

Mount the PHA... Vision Sensor in such a way that the optical surface of the device captures the optimum distance to the carrier/hole (see "Technical Data"). The stability of the Vision Sensor mounting and the manner in which the vehicle is guided must ensure that the device is not operated outside of its depth of focus range.

All Vision Sensors can be adapted to optimally meet specific requirements by means of parameterization.

Indicators and Controls

The PHA... Vision Sensor is equipped with seven indicator LEDs for carrying out visual function checks and rapid diagnostics. The read head is equipped with two buttons at the back for activating the parameterization mode.

LEDs

LED	Color	Labeling	Meaning
1	yellow	BUS LINK	PROFINET communication active
2	yellow	BUS TX / RX	Data transfer
3	red	BUS ERR	PROFINET communication error
4	green/red	PWR/ERR	Fault with power supply/general error
5	yellow	ZERO POS	Zero position reached
6	yellow	RANGE	Within detection/capture range
7	red/green/yellow	INTERNAL DIAGNOSTIC	Internal diagnostics

External Parameterization

In order to parameterize the device externally, the parameterization code is required in the form of a data matrix containing the desired parameters. Data matrix code cards detailing the step-by-step process for externally parameterizing the device are printed in the operating instructions for the Vision Sensor.

- The Vision Sensor is switched over from normal operation to parameterization mode using button 2 on the back of the device. To switch the device over, button 2 must be pressed and held for more than two seconds. LED5 then flashes.
- Note:** Parameterization mode is exited automatically if the device is inactive for one minute. In this case, the Vision Sensor reverts to normal mode and operates without the settings having been changed.
- Place the parameterization code in the field of vision of the camera module. After the parameterization code is detected, the green LED4 lights up for one second. In the event of an invalid parameterization code, LED4 lights up red for two seconds.
- Briefly pressing button 2 will end parameterization mode. Unsaved changes will be lost.