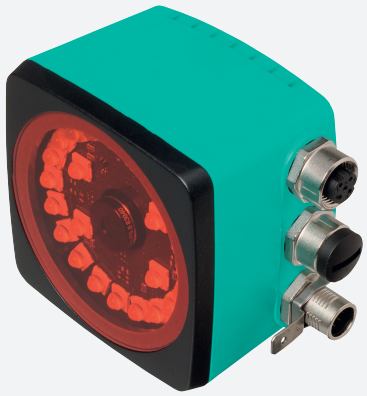


Optical reading head

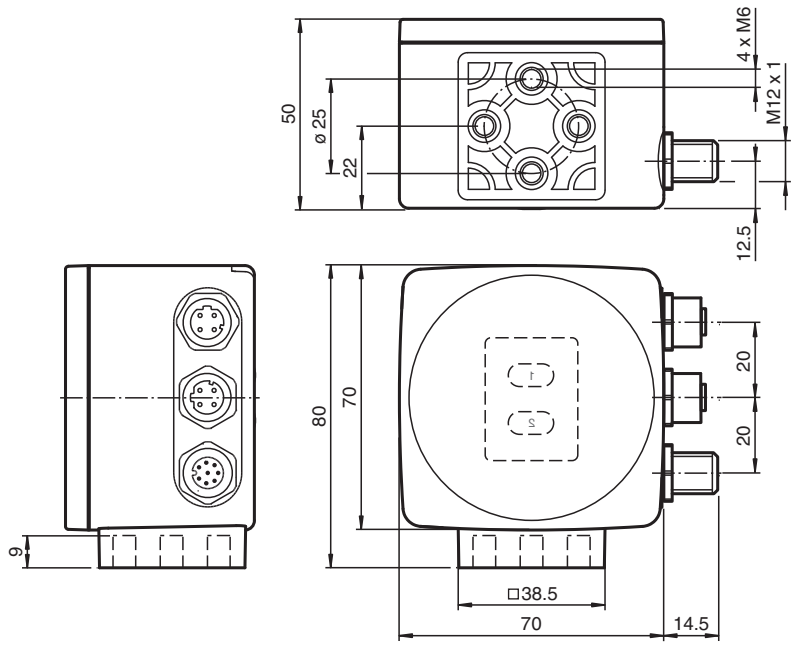
PCV100-F200-B25-V1D-6011

- Non-contact positioning on Data Matrix code tape
- Mechanically rugged: no wearing parts, long operating life, maintenance-free
- High resolution and precise positioning, especially for facilities with curves and switch points as well as inclines and declines.
- Travel ranges up to 10 km, in X and Y direction
- Integrated switch
- EtherNet/IP

Read head for incident light positioning system

EtherNet/IP™

Dimensions



Technical Data

General specifications		
Passage speed	v	≤ 6 m/s
Measuring range		max. 10000 m
Light type		Integrated LED lightning (red)
Read distance		100 mm
Depth of focus		± 40 mm
Reading field		60 mm x 40 mm
Ambient light limit		100000 Lux
Resolution		± 0.1 mm

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Technical Data

Nominal ratings		
Camera		
Type		CMOS , Global shutter
Processor		
Clock pulse frequency		600 MHz
Speed of computation		4800 MIPS
Functional safety related parameters		
$MTTF_d$		103 a
Mission Time (T_M)		51 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
LED indication		7 LEDs (communication, alignment aid, status information)
Electrical specifications		
Operating voltage	U_B	15 ... 30 V DC , PELV
No-load supply current	I_0	max. 400 mA
Power consumption	P_0	6 W
Interface		
Interface type		100 BASE-TX
Protocol		EtherNet/IP
Transfer rate		100 MBit/s
Interface 2		
Interface type		USB Service
Input		
Input type		1 funtion input 0-level: -$U_B$or unwired 1-level: +8 V ... +U_B , programmable
Input impedance		≥ 27 kΩ
Output		
Output type		1 to 3 switch outputs , programmable , short-circuit protected
Switching voltage		Operating voltage
Switching current		150 mA each output
Standard conformity		
Emitted interference		EN 61000-6-4:2007+A1:2011
Noise immunity		EN 61000-6-2:2005
Shock resistance		EN 60068-2-27:2009
Vibration resistance		EN 60068-2-6:2008
Approvals and certificates		
UL approval		cULus Listed, General Purpose, Class 2 Power Source, Type 1 enclosure
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		-20 ... 85 °C (-4 ... 185 °F)
Relative humidity		90 % , noncondensing
Mechanical specifications		
Connection type		8-pin, M12x1 connector, standard (supply+IO) 4-pin, M12x1 socket, D-coded (LAN) 4-pin, M12x1 socket, D-coded (LAN)
Housing width		70 mm
Housing height		70 mm
Housing depth		50 mm
Degree of protection		IP67
Material		
Housing		PC/ABS
Mass		approx. 200 g

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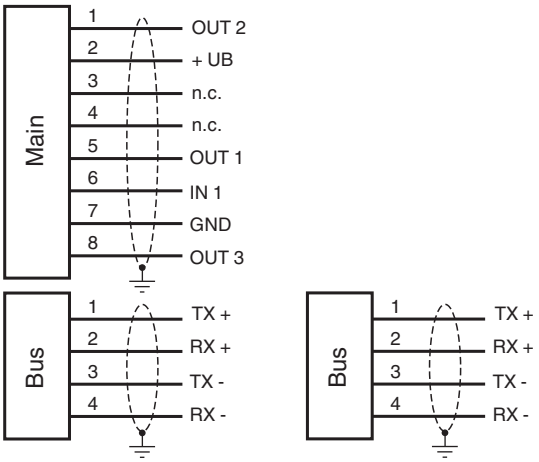
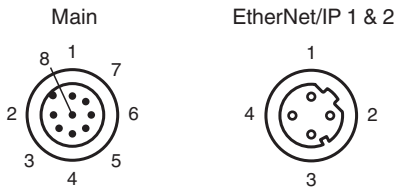
Connection

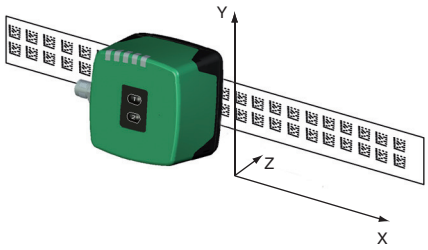


Connection Assignment



Characteristic Curve

Coordinates



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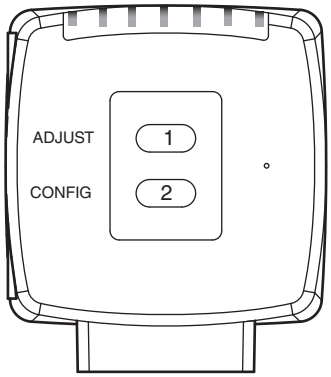

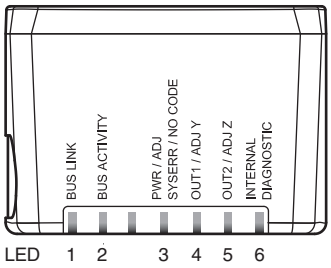

Matching system components

	PCV-CR20	Coded repair tape for PCV system
	PCV*-CA10-* / PCV*-CA20-*	Data Matrix code tape
	PCV-CR40	Coded repair tape for PCV system

Accessories

	PCV-SC12	Grounding clip for PCV system
	PCV-LM25	Marker head for 25 mm code tape
	V1SD-G-2M-PUR-ABG-V1SD-G	Ethernet bus cable, M12 to M12, PUR cable 4-pin, CAT5e
	V1SD-G-5M-PUR-ABG-V1SD-G	Ethernet bus cable, M12 to M12, PUR cable 4-pin, CAT5e
	PCV-AG100	Alignment guide for PCV100-* read head
	PCV-MB1	Mounting bracket for PCV* read head
	V19-G-ABG-PG9-FE	Female connector, M12, 8-pin, shielded, field attachable
	V19-G-ABG-PG9	Female connector, M12, 8-pin, shielded, field attachable

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Accessories

	PCV-SC12A	Grounding clip for PCV system
	V19-G-2M-PUR-ABG	Female cordset, M12, 8-pin, shielded, PUR cable
	V19-G-5M-PUR-ABG	Female cordset, M12, 8-pin, shielded, PUR cable
	V1SD-G-5M-PUR-ABG-V45-G	Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e
	V1SD-G-30M-PUR-ABG-V45-G	Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e
	V1SD-G-2M-PUR-ABG-V45-G	Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e
	V1SD-G-10M-PUR-ABG-V45-G	Connection cable, M12 to RJ-45, PUR cable 4-pin, CAT5e
	Vision Configurator	Operating software for camera-based sensors
	PCV-KBL-V19-STR-USB	USB cable unit with power supply
	PCV-CM20-*-*-SET	Event Marker for PCV system

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Additional Information

General

The reading head is part of the positioning system in the method for measurement by Pepperl+Fuchs. It consists of a camera module and an integrated illumination unit among other things. The reading head detects position marks, which are put on an adhesive code band in the form of Data Matrix code. The mounting of the code band is as a rule stationary on a firm part of the plant (elevator shaft, overhead conveyor mounting rails…); that of the reading head is parallel on the moving "vehicle" (elevator car, overhead conveyor chassis…).

Mounting and commissioning

Mount the reading head such that its optical surface captures the optimal read distance to the code band (see Technical Data). The stability of the mounting and the guidance of the vehicle must be provided such that the depth of field of the reading head is not closed during operation. All reading heads can be optimally customized by parameterization for specific requirements.

Displays and Controls

The reading head allows visual function check and fast diagnosis with 6 indicator LEDs. The reading head has 2 buttons on the reverse of the device to activate the alignment aid and parameterization mode.

LEDs

LED	Color	Label	Meaning
1	green	BUS LINK	Communication status
2	yellow	BUS ACTIVITY	Data transfer
3	red / green	PWR / ADJ SYSERR / NO CODE	Code recognized / not recognized, Error
4	yellow	OUT1/ADJ Y	Output 1, Alignment aid Y
5	yellow	OUT2/ADJ Z	Output 2, Alignment aid Z
6	red/green/yellow	INTERNAL DIAGNOSTIC	Internal diagnostics

Alignment aid for the Y and Z coordinates

The activation of the alignment aid is only possible within 10 minutes of switching on the reading head. The switchover from normal operation to “alignment aid operating mode is via button 1 on the reverse of the reading head.

- Press the button 1 for longer than 2 s. LED3 flashes green for a recognized code band. LED3 flashes red for an unrecognized code band.
- Z coordinate: If the distance of the camera to the code band too small, the yellow LED5 lights up. If the distance of the camera to the code band too large, the yellow LED5 lights up. Within the target range, the yellow LED5 flashes at the same time as the green LED3.
- Y coordinate: If the optical axis of the camera is too deep in relation to the middle of the code band, the yellow LED4 lights up. If the optical axis is too high, the yellow LED4 extinguishes. Within the target range, the yellow LED4 flashes at the same time as the green LED3.
- A short press on button 1 ends the alignment aid and the reading head changes to normal operation.

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