

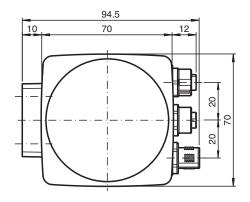
Optical reading head PGV100-F200A-B25-V1D

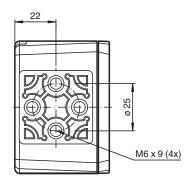
- Mechanically rugged: no wearing parts, long operating life, maintenance-free
- EtherNet/IP interface
- Non-contact positioning on Data Matrix code tape
- Noncontact positioning with Data Matrix TAGs
- Noncontact lane tracking of a colored strip
- Reading of Data Matrix control codes
- White-blue light

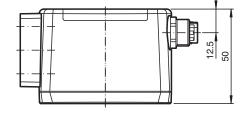
Read head for incident light positioning system



Dimensions







Technical Data

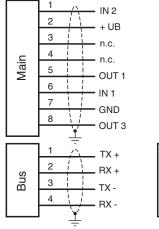
General specifications		
Passage speed	V	≤ 8 m/s
Measuring range		max. 10000 m
Light type		Integrated LED lightning (white/blue)
Scan rate		25 s ⁻¹
Latency		60 ms
Read distance		100 mm
Depth of focus		± 20 mm
Reading field		120 mm x 80 mm
Ambient light limit		100000 Lux

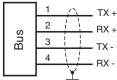
Camera Fype CMOS, Global shutter Processor Type Clock pulse frequency 600 MHz Speed of computation 32 Bit Digital resolution 52 Bit Functional safety related parameters MTTF _B 88 a Mission Time (T _b) 10 a Diagnostic Coverage (DC) 0% Indicators Coverage (DC) 0% Indication Time (T _b) 10 a Diagnostic Coverage (DC) 0% Indication Coverage (DC) 0% Indication Stept state (Parameters) 10 max. 400 mA Electrical specifications 15 30 V DC , PELV Operating voltage Us 15 30 V DC , PELV Power consumption P ₀ 0 W Interface type 100 BASE-TX Electrical specifications Interface type 100 MStre 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Technical Data		
Naminal ratings	Accuracy		± 0.2 mm
Camera Fype CMOS, Global shutter Processor Type Clock pulse frequency 600 MHz Speed of computation 32 Bit Digital resolution 52 Bit Functional safety related parameters MTTF _B 88 a Mission Time (T _b) 10 a Diagnostic Coverage (DC) 0% Indicators Coverage (DC) 0% Indication Time (T _b) 10 a Diagnostic Coverage (DC) 0% Indication Coverage (DC) 0% Indication Stept state (Parameters) 10 max. 400 mA Electrical specifications 15 30 V DC , PELV Operating voltage Us 15 30 V DC , PELV Power consumption P ₀ 0 W Interface type 100 BASE-TX Electrical specifications Interface type 100 MStre 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Nominal ratings		
Processor	<u> </u>		
Processor	Type		CMOS , Global shutter
Speed of computation 38 bit 38 b	Processor		
Speed of computation Digital resolution 4800 MIPS Digital resolution 32 Bit Functional safety related parameters MTTF₁ 88 a Mission Time (Tw) 10 a Diagnostic Coverage (DC) 0 % Indicators/operating means LED indication Electrical specifications 7 LEDis (communication, alignment aid, status information) Deprating voltage Unal 15 30 V DC, PELV No-load supply current In max. 400 mA Power consumption Po 6 W Interface type 100 BASE-TX Interface type 100 MBit/s Interface type 100 MBit/s Interface type UsB Service Imput 1 function input Imput type 1 function input Imput type 1 function input Oleveit - 1-for univered 2 27 KΩ Output type 1 to 3 switch outputs, PNP , programmable , short-circuit protected Owtput type 1 to 3 switch outputs, PNP , programmable , short-circuit protected Switching current 2 to 6 Sec. 2008 Conformity	Clock pulse frequency		600 MHz
Functional safety related parameters MITF₁	, , ,		4800 MIPS
Functional safety related parameters MITF₁	Digital resolution		32 Bit
MTTFd 88 a Mission Time (Tu) 10 a Diagnostic Coverage (DC) 0 % Indicators Coverage (DC) 0 % Indication 7 LEDs (communication, alignment aid, status information) Electrical specifications 7 LEDs (communication, alignment aid, status information) Operating voltage Un 15 30 V DC , PELV No-load supply current In max 400 mA Power consumption Pn 6 W Power consumption Pn 6 W Interface type 100 BASE-TX Protocol EtherNet/IP Transfer rate 100 MBit/s Interface type USB Service Input timped acce 2 Service Input timpedance 1 function input to 1-lever; 4 bV *Up, programmable Input timpedance 2 ≥ 2 KΩ Output type 1 to 3 switch outputs, PNP , programmable , short-circuit protected Switching outrage Operating voltage Switching outrage Po to 868-2-27:2009 Vibration resistance EN 60068-2-27:2009 Vibration resistance EN 610068-2-27:2009 <td></td> <td></td> <td></td>			
Mission Time (T _M) 10 a Diagnostic Coverage (DC) 0 % Indicators/operating means VIEDs (communication, alignment aid, status information) Electrical specifications VB 1530 V DC , PELV Operating voltage U _B 1530 V DC , PELV No-load supply current I _B max. 400 mA Power consumption P _B 6 W Interface type 100 BASE-TX Protocol EtherNet/IP Transfer rate 100 MBit/9 Interface 2 101 MBit/9 Interface 1 100 MBit/9 Input type 1 Service Input 1 Function input Input type 1 truntion input Input type 1 truntion input Input type 1 truntion input Vibration value 2 27 kΩ Output type 1 truntion input Switching value 0 perating voltage Switching current 1 to 3 switch outputs , PNP , programmable , short-circuit protected Owtput type 1 to 3 switch outputs , PNP , programmable , short-circuit protected			88 a
Diagnostic Coverage (DC) 0 %			10 a
Indicators/operating means LED indication 7 LEDs (communication, alignment aid, status information) Electrical specifications Value 15 30 V DC , PELV Value	\ 100/		0%
LED indication Flectrical specifications Operating voltage No-load supply current No-lo			
Departing voltage	-		7 LEDs (communication, alignment aid, status information)
Operating voltage U _B 15 30 V DC , PELV No-load supply current I _B max. 400 mA Power consumption P _B 6 W Interface Interface Vipe 100 BASE-TX Protocol EtherNet/IP Transfer rate 100 MBit/s Interface 2 Interface 2 Interface type USB Service Input USB Service Input Input impedance 2 × 27 kΩ Input impedance 2 × 27 kΩ Output type 1 to 3 switch outputs , PNP , programmable , short-circuit protected Switching voltage Operating voltage Switching ourent 1 to 3 switch outputs , PNP , programmable , short-circuit protected Operating voltage Switching ourent 1 to 3 switch outputs , PNP , programmable , short-circuit protected Operating voltage Switching ourent 1 to 3 switch outputs , PNP , programmable , short-circuit protected Operating voltage Switching ourent 1 to 3 switch outputs , PNP , programmable , short-circuit protected Operating voltage Switching ourent 1 to 3 switch outputs , PNP , programmable , short-circuit protected Short set set set set set set set set set se			
No-load supply current I₀ max. 400 mA Power consumption P₀ 6 W Interface Interface Interface type 100 BASE-TX Protocol EtherNet/IP Transfer rate 100 MBit/s Interface 2 Interface type Imput USB Service Imput Imput Input type 1 funtion input ol-level: -U ₁ or unwired 1-level: -U ₂ or unwired 1-level: -U ₃ or unwired 1-		U₽	15 30 V DC . PELV
Power consumption P₀ (a) 6 W Interface (Interface type) 100 BASE-TX Protocol EtherNet/IP Transfer rate 100 MBit/s Interface 2 USB Service Interface type USB Service Input Input type			
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Interface type		. 0	
Protocol EtherNet/IP 100 MBit/s 100			100 BASE-TX
Transfer rate 100 MBit/s Interface 2 Interface type USB Service Input type 1 funtion input O-level: -Ugor unwired 1-level: -Vgor unwired 1-level: -4 V ···· +Vg ·· programmable 1-level: -4 V ····· +Vg ·· programmable 1-level: -4 V ···· +Vg ·· programmable 1-level: -4 V ··· +Vg ·· programmable 1-level:			
Interface 2 Interface type USB Service Imput Input type			
Interface type USB Service Input Inp			100 MDIUS
Input type 1 funtion input			LISB Service
Input type I funtion input O-level: -Ugor unwired O-level: -8 V +Ug., programmable ≥ 27 kΩ Output Output type Output type Switching voltage Switching current Conformity Shock resistance EN 60068-2-27:2009 Finited interference EN 60068-2-2008 Emitted interference EN 61000-6-2:2005 CC caprovals and certificates CE conformity CCC approval According to EN 62471:2008 Ambient conditions Operating temperature O60 °C (32140 °F), -2060 °C (-4 140 °F) (noncondensing; prevent icing on the lens!) Storage temperature O60 °C (32140 °F), -2060 °C (-4 140 °F) (noncondensing; prevent icing on the lens!) Storage temperature Power in the lens! En 6pin, M12×1 connector, standard (supply+IO) A-pin, M12×1 socket, D-coded (LAN) Housing PC/ABS			OOD GETVICE
O-level: -Ugor unwired 1-level: +8 V +Ug , programmable 1-level: +8 V +Ug , progr			1 funtion input
Output type	iliput type		0-level: -U _B or unwired
Output type 1 to 3 switch outputs , PNP , programmable , short-circuit protected Switching voltage Operating voltage Switching current 150 mA each output Conformity Shock resistance EN 60068-2-27:2009 Vibration resistance EN 60068-2-62008 Emitted interference EN 61000-6-4:2007+A1:2011 Noise immunity EN 61000-6-2:2005 Photobiological safety Bisk group 1 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 060 °C (32 140 °F) , -20 60 °C (-4 140 °F) (noncondensing; prevent icing on the lens!) Storage temperature 2-20 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) Degree of protection IP67 Material Housing PC/ABS	Input impedance		≥ 27 kΩ
Switching voltage Switching current 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 Risk group 1 according to EN 62471:2008 Approvals and certificates CE conformity CCC approval CCC approval CCC approval CCC approval Ambient conditions Operating temperature O 60 °C (32 140 °F), -20 60 °C (-4 140 °F) (noncondensing; prevent icing on the lens!) Storage temperature 1 -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) Degree of protection IP67 Material Housing PC/ABS	Output		
Switching current 150 mA each output 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 Risk group 1 according to EN 62471:2008 Approvals and certificates CE conformity CC conformity CE CCC approval CCC approval / marking not required for products rated ≤36 V Ambient conditions O 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) Degree of protection IP67 Material Housing PC/ABS	Output type		1 to 3 switch outputs , PNP , programmable , short-circuit protected
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 Risk group 1 according to EN 62471:2008 Approvals and certificates CE conformity CE CCC approval / marking not required for products rated ≤36 V Ambient conditions Operating temperature 060 °C (32 140 °F), -20 60 °C (-4 140 °F) (noncondensing; prevent icing on the lens!) Storage temperature -2085 °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) Approvals and certificates PC/ABS	Switching voltage		Operating voltage
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 Risk group 1 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 -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) Degree of protection IP67 Material Housing	Switching current		150 mA each output
Einitted interference EN 60068-2-6:2008 Emitted interference EN 61000-6-4:2007+A1:2011 Noise immunity EN 61000-6-2:2005 Photobiological safety Risk group 1 according to EN 62471:2008 Approvals and certificates CE conformity CE CC approval / marking not required for products rated ≤36 V Ambient conditions Operating temperature 060 °C (32140 °F), -2060 °C (-4140 °F) (noncondensing; prevent icing on the lens!) Storage temperature -2085 °C (-4185 °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) Degree of protection IP67 Material Housing PC/ABS	Conformity		
Emitted interference EN 61000-6-4:2007+A1:2011 Noise immunity EN 61000-6-2:2005 Photobiological safety Risk group 1 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 060 °C (32 140 °F), -2060 °C (-4 140 °F) (noncondensing; prevent icing on the lens!) Storage temperature -2085 °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) Degree of protection IP67 Material Housing PC/ABS	Shock resistance		EN 60068-2-27:2009
Noise immunity Photobiological safety Approvals and certificates CE conformity CCC approval Ambient conditions Operating temperature Storage temperature Relative humidity 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) Material Housing PC/ABS	Vibration resistance		EN 60068-2-6:2008
Photobiological safety Risk group 1 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 -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) Degree of protection IP67 Material Housing PC/ABS	Emitted interference		EN 61000-6-4:2007+A1:2011
Approvals and certificates CE conformity CC 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) 1P67 Material Housing PC/ABS	Noise immunity		EN 61000-6-2:2005
CE conformity 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) 1P67 Material Housing PC/ABS	Photobiological safety		Risk group 1 according to EN 62471:2008
CCC approval CCC approval / marking not required for products rated ≤36 V Ambient conditions Operating temperature 060 °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) Degree of protection IP67 Material Housing PC/ABS	Approvals and certificates		
Operating temperature O 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) Degree of protection IP67 Material Housing PC/ABS	CE conformity		CE
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 PC/ABS	CCC approval		CCC approval / marking not required for products rated ≤36 V
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) Degree of protection IP67 Material Housing PC/ABS	Ambient conditions		
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) Degree of protection IP67 Material Housing PC/ABS	Operating temperature		0 60 °C (32 140 °F) , $$ -20 60 °C (-4 140 °F) (noncondensing; prevent icing on the lens!)
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) Degree of protection IP67 Material Housing PC/ABS	Storage temperature		-20 85 °C (-4 185 °F)
Connection type 8-pin, M12x1 connector, standard (supply+IO) 4-pin, M12x1 socket, D-coded (LAN) 4-pin, M12x1 socket, D-coded (LAN) Degree of protection IP67 Material Housing PC/ABS	Relative humidity		90 % , noncondensing
4-pin, M12x1 socket, D-coded (LAN) 4-pin, M12x1 socket, D-coded (LAN) Degree of protection IP67 Material Housing PC/ABS	Mechanical specifications		
Material Housing PC/ABS	Connection type		4-pin, M12x1 socket, D-coded (LAN)
Material Housing PC/ABS	Degree of protection		IP67
			PC/ABS
	Mass		approx. 200 g



Technical Data		
Dimensions		
Height	70 mm	
Width	70 mm	
Depth	50 mm	
Factory settings		
X resolution (protocol)	1 mm	
Y resolution (protocol)	1 mm	
Angle resolution	1°	
Extrapolation	On	

Connection





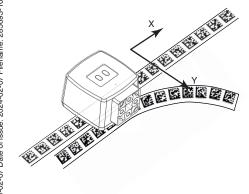
Connection Assignment

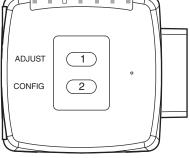
Main

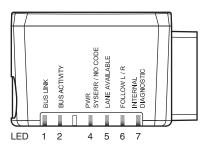
Profinet 1 & 2



Function Principle







Release date: 2024-02-07 Date of issue: 2024-02-07 Filename: 285693-100006_eng.pdf

Additional Information

The PGV... reader forms part of the positioning system in the Pepperl+Fuchs incident light process. The reader's features include a camera module and an integrated illumination unit. The reader uses these features to detect a colored strip stuck to the floor to track the lane. The reader also detects control codes and position markers in the form of Data Matrix codes attached to a self-adhesive code tape. The code tape is usually mounted in a fixed position instead of the colored strip or parallel to the colored strip. The reader is located on the front of an automated guided vehicle and guides this vehicle along the colored strip.

Mounting and Commissioning

Mount the reader such that the optical surface of the device captures the optimum reading distance to the colored strip (see "Technical Data"). The stability of the mounting and the manner in which the vehicle is guided ensure that the reader is not operated outside of its depth of focus range. The colored strip must not leave the maximum reading window for the reader during this process.

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

Indicators and Operating Controls

The PGV... reader is equipped with seven indicator LEDs for carrying out visual function checks and rapid diagnostics. The reader is equipped with two buttons at the back for activating the alignment aid and parameterization mode.

LEDs

LED	Color	Label	Meaning
1	green	BUS LINK	PROFINET communication active
2	yellow	BUS ACTIVITY	Connection status
4	red / green	PWR / ADJ SYSERR/NO CODE	Code detected/not detected, error
5	yellow	LANE AVAILABLE	Lane available
6	yellow	FOLLOW R/L	"Follow lane" activated
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 reader parameters. Data Matrix code cards detailing the step-by-step process for externally parameterizing the device are printed in the operating instructions for the reader.

The reader can be parameterized only within ten minutes of being switched on. If a key is pressed after ten minutes of the device being switched on, a visual signal is given by the LEDs (LED1, green/LED2, red/LED4, green/LED5, yellow/LED6, yellow, flashing for two seconds).

- The switchover from normal mode to parameterization mode is made by pressing button 2 on the back of the reader. 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 reader 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.