Optical reading head

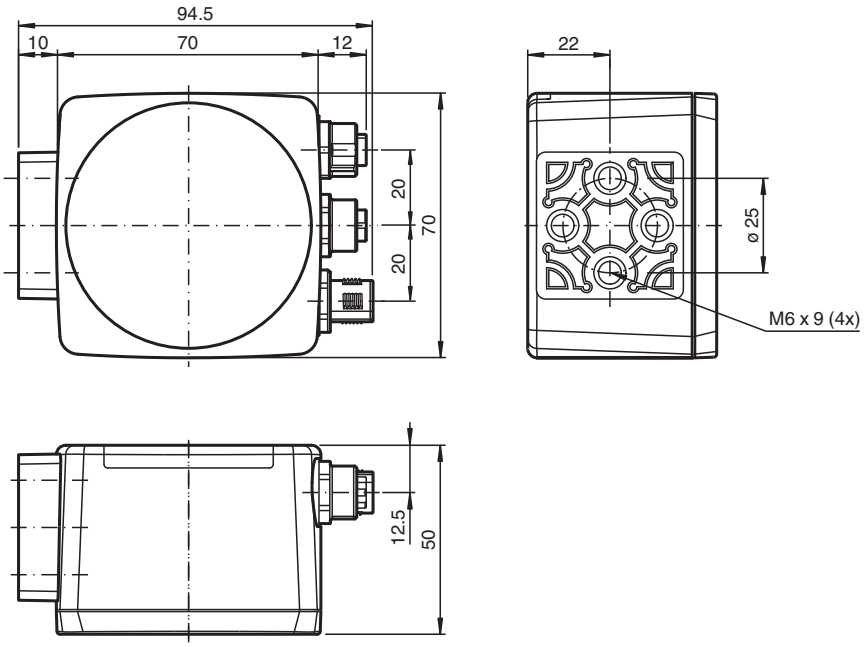
PGV100-F200A-B16-V15

- Mechanically rugged: no wearing parts, long operating life, maintenance-free
- CANopen interface
- Noncontact lane tracking of a colored strip
- Noncontact positioning along the colored strip using Data Matrix codes
- Reading of Data Matrix control codes

Read head for incident light positioning system

CANopen CE

Dimensions



Technical Data

General specifications		
Passage speed	v	≤ 8 m/s
Measuring range		max. 10000 m
Light type		Integrated LED lightning (white/blue)
Read distance		100 mm
Depth of focus		± 20 mm
Reading field		120 mm x 80 mm
Ambient light limit		100000 Lux
Resolution		± 0.2 mm

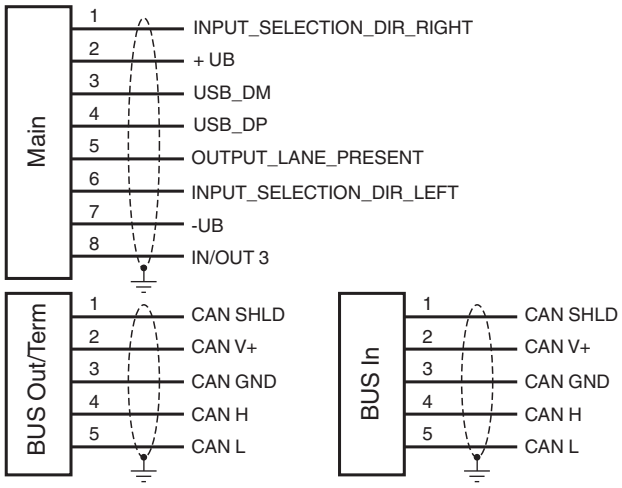
Release date: 2020-04-08 Date of issue: 2020-04-08 Filename: 258089_eng.pdf

Technical Data

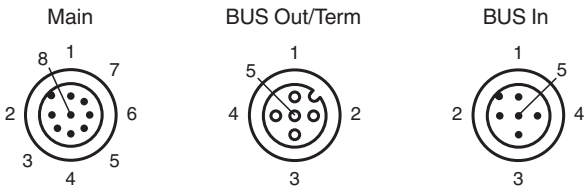
Nominal ratings		
Camera		
Type		CMOS , Global shutter
Processor		
Clock pulse frequency		600 MHz
Speed of computation		4800 MIPS
Functional safety related parameters		
$MTTF_d$		99 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
LED indication		7 LEDs (communication, 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		CANopen , galvanically isolated
Data output code		binary code
Transfer rate		max. 1 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!)
Relative humidity		90 % , noncondensing
Mechanical specifications		
Connection type		8-pin, M12x1 connector, standard (supply+IO) 5-pin, M12x1 socket, A-coded (bus out/termination) 5-pin, M12x1 connector, A-coded (bus in)
Housing width		70 mm
Housing height		70 mm
Housing depth		50 mm
Degree of protection		IP67
Material		
Housing		PC/ABS
Mass		approx. 200 g

Release date: 2020-04-08 Date of issue: 2020-04-08 Filename: 258089_eng.pdf

Connection

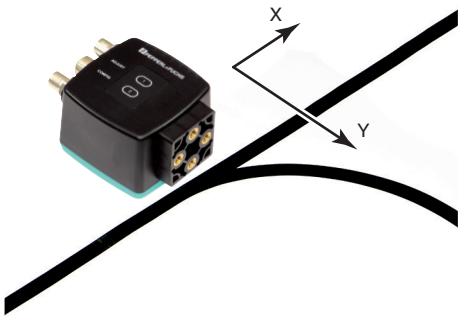


Connection Assignment

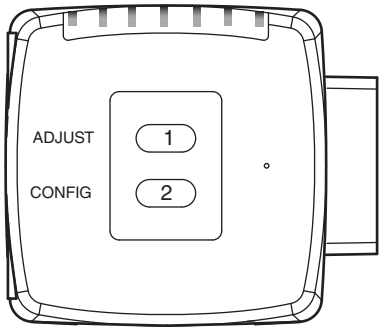


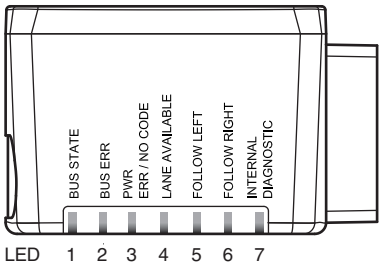
Characteristic Curve

Coordinates



Release date: 2020-04-08 Date of issue: 2020-04-08 Filename: 258089_eng.pdf





Matching system components

	**VAZ-V1S-B**	Blind plug for M12 sockets
	**PGV*-CC25-***	Control code tape für PGV System
	**PGV25M-CD100-CLEAR**	Protective laminate for PGV code tape
	**PGV*-CA25-***	Data Matrix code tape

Accessories

	**PCV-SC12**	Grounding clip for PCV system
	**ICZ-TR-CAN/DN-V15**	Terminal resistor for DeviceNet, CANopen
	**PCV-LM25**	Marker head for 25 mm code tape
	**PCV-MB1**	Mounting bracket for PCV* read head
	**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
	**PGV33M-CB19-BU**	Enclosed, 100 mm VESA mount

Release date: 2020-04-08 Date of issue: 2020-04-08 Filename: 258089_eng.pdf

Accessories

	**PGV33M-CB19-BU**	PGV color-tape blue
	**PGV33M-CB19-GN**	PGV color-tape green
	**PGV33M-CB19-GN**	Panel mount, stainless-steel bezel (316), no logo
	**PGV33M-CB19-RD**	Panel mount, stainless-steel bezel (316)
	**PGV33M-CB19-RD**	PGV color-tape red
	**PGV33M-CB19-YE**	Panel mount, painted bezel
	**PGV33M-CB19-YE**	PGV color-tape yellow
	**Vision Configurator**	Operating software for camera-based sensors
	**PCV-KBL-V19-STR-USB**	USB cable unit with power supply
	**PGV25M-CD120-CLEAR**	Protective laminate for PGV code tape

Release date: 2020-04-08 Date of issue: 2020-04-08 Filename: 258089_eng.pdf

Additional Information

General

The PGV… reader forms part of the positioning system in the Pepperl+Fuchs incident light process. The read head'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 Data Matrix 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 and/or Data Matrix code tape.

Mounting and Commissioning

Mount the reader such that the optical surface of the device captures the optimum reading distance to the colored strip and/or Data Matrix code tape (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 and/or Data Matrix code tape must not leave the maximum reading window for the reader during this process.
All readers can be adapted to optimally meet specific requirements through parameterization.

Displays and Local Controls

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

LEDs

LED	Color	Label	Meaning
1	Yellow	BUS STATE	CANopen communication active
2	Red	BUS ERR	CANopen communication error
3	Green/red	PWR ERR/NO CODE	Code detected/not detected, error
4	Yellow	LANE AVAILABLE	Lane available
5	Yellow	FOLLOW LEFT	"Follow left-hand lane" activated
6	Yellow	FOLLOW RIGHT	"Follow right-hand lane" activated
7	Red/green/yellow	INTERNAL DIAGNOSTIC	Internal diagnostics

External Parameterization

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 instruction manual 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, yellow/LED2, red/LED3, green/LED4, yellow/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. LED4 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 LED3 lights up for one second. If the parameterization code is invalid, LED3 lights up in red for two seconds.
- Briefly pressing button 2 will exit parameterization mode.

Release date: 2020-04-08 Date of issue: 2020-04-08 Filename: 258089_eng.pdf