## Technical data

**General specifications**
- Passage speed $v_{max} \leq 8 \text{ m/s}$
- Measuring range $max. 10000 \text{ m}$
- Light type: Integrated LED lightning, infrared
- Read distance $150 \text{ mm}$
- Depth of focus $\pm 30 \text{ mm}$
- Reading field $170 \text{ mm} \times 105 \text{ mm}$
- Ambient light limit $100000 \text{ Lux}$
- Resolution $\pm 0.2 \text{ mm}$

**Nominal ratings**
- Camera
  - Type: CMOS, Global shutter
- Processor
  - Clock pulse frequency $600 \text{ MHz}$
  - Speed of computation $4800 \text{ MIPS}$

**Functional safety related parameters**
- $MTTF_{90} = 86 \text{ a}$
- $Mission \ Time (T_{M}) = 43 \text{ a}$
- Diagnostic Coverage (DC) $0 \%$

**Indicators/operating means**
- LED indicator: 7 LEDs (communication, alignment aid, status information)

**Electrical specifications**
- Operating voltage $U_{b} = 15 \ldots 30 \text{ V DC , PELV}$
- No-load supply current $I_{0, max.} = 200 \text{ mA}$
- Power consumption $P_{0} = 3 \text{ W}$
- Interface type: RS 485 interface
- Data output code: binary code
- Transfer rate: $38400 \ldots 230400 \text{ Bit/s}$
- Termination: Switchable terminal resistor
- Query cycle time $\geq 10 \text{ ms}$

**Input**
- Input type: 1 to 3 functional inputs, programmable
- Input impedance $\geq 27 \text{ k\Omega}$

**Output**
- Output type: 1 to 3 switch outputs, PNP, programmable, short-circuit protected
- Switching voltage: Operating voltage
- Switching current: $150 \text{ mA } each \text{ output}$

**Standard conformity**
- Noise immunity: EN 61000-6-2:2006

**Ambient conditions**
- Operating temperature: $0 \ldots 60 \text{ °C (32 \ldots 140 °F)}$, $-20 \ldots 60 \text{ °C (-4 \ldots 140 °F)}$
- Noncondensing (prevent icing on the lens!)
- Storage temperature: $-20 \ldots 85 \text{ °C (-4 \ldots 185 °F)}$
- Relative humidity: $90 \%$, noncondensing

**Mechanical specifications**
- Connection type: 8-pin, M12 x 1 connector
- Housing width: 70 mm
- Housing height: 70 mm
- Housing depth: 50 mm
- Degree of protection: IP67

**Material**
- Housing: PC/ABS
- Mass: approx. 160 g

**Approvals and certificates**
- UL approval: cUL Listed, General Purpose, Class 2 Power Source, Type 1 enclosure
- CCC approval: CCC approval / marking not required for products rated $\leq 36 \text{ V}$

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### Model number
PGV150I-F200A-R4-V19

**Read head for incident light positioning system**

### Features
- Mechanically rugged: no wearing parts, long operating life, maintenance-free
- RS-485 interface
- Reading of Data Matrix control codes
- Infrared light
- Non-contact positioning on Data Matrix code tape

### System components
- **PGV*-CA25-*
  - Data Matrix code tape
- **VAZ-V1S-B**
  - Blind plug for M12 sockets
- **PGV*-CC25-*
  - Control code tape für PGV System

Refer to “General Notes Relating to Pepperl+Fuchs Product Information”.

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Optical reading head

Dimensions

Electrical connection

Pinout

General
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.

System components

PGV25M-CD100-CLEAR
Protective laminate for PGV code tape
PGV85-CT4
Data matrix tag for PGV system
PGV25M-CD160-CLEAR
Protective laminate for PGV code tape

Additional information

Accessories

PCV-USB-RS485-Converter Set
USB to RS 485 interface converter
PCV-KBL-V19-STR-RS485
Cable unit with power supply for USB / RS-485 interface converter
V19-G-ABG-PG9
Female connector, M12, 8-pin, shielded, field attachable
V19-G-ABG-PG9-FE
Female connector, M12, 8-pin, shielded, field attachable
PCV-SC12
Grounding clip for PCV system
PCV-AG100
Alignment guide for PCV100-* read head
PCV-LM25
Marker head for 25 mm code tape
PCV-MB1
Mounting bracket for PCV* read head
PGV33M-CB19-BU
PGV color-tape blue
PGV33M-CB19-GN
PGV color-tape green
Accessories
PGV33M-CB19-RD
PGV color-tape red
PGV33M-CB19-YE
PGV color-tape yellow
Vision Configurator
Operating software for camera-based sensors

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

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Label</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yellow</td>
<td>COM</td>
<td>Communication active</td>
</tr>
<tr>
<td>2</td>
<td>Green/red</td>
<td>PWR ERR/NO CODE</td>
<td>Code detected/not detected, error</td>
</tr>
<tr>
<td>3</td>
<td>Yellow</td>
<td>LANE AVAILABLE</td>
<td>Lane available</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
<td>FOLLOW LEFT</td>
<td>&quot;Follow left-hand lane&quot; activated</td>
</tr>
<tr>
<td>5</td>
<td>Yellow</td>
<td>FOLLOW RIGHT</td>
<td>&quot;Follow right-hand lane&quot; activated</td>
</tr>
<tr>
<td>6</td>
<td>Red/green/yellow</td>
<td>INTERNAL DIAGNOSTIC</td>
<td>Internal diagnostics</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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, yellow/LED2, red/LED3, yellow/LED4, yellow/LED5, 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. LED3 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 LED2 lights up for one second. In the event of an invalid parameterization code, LED2 lights up red for two seconds.
- Briefly pressing button 2 will end parameterization mode.