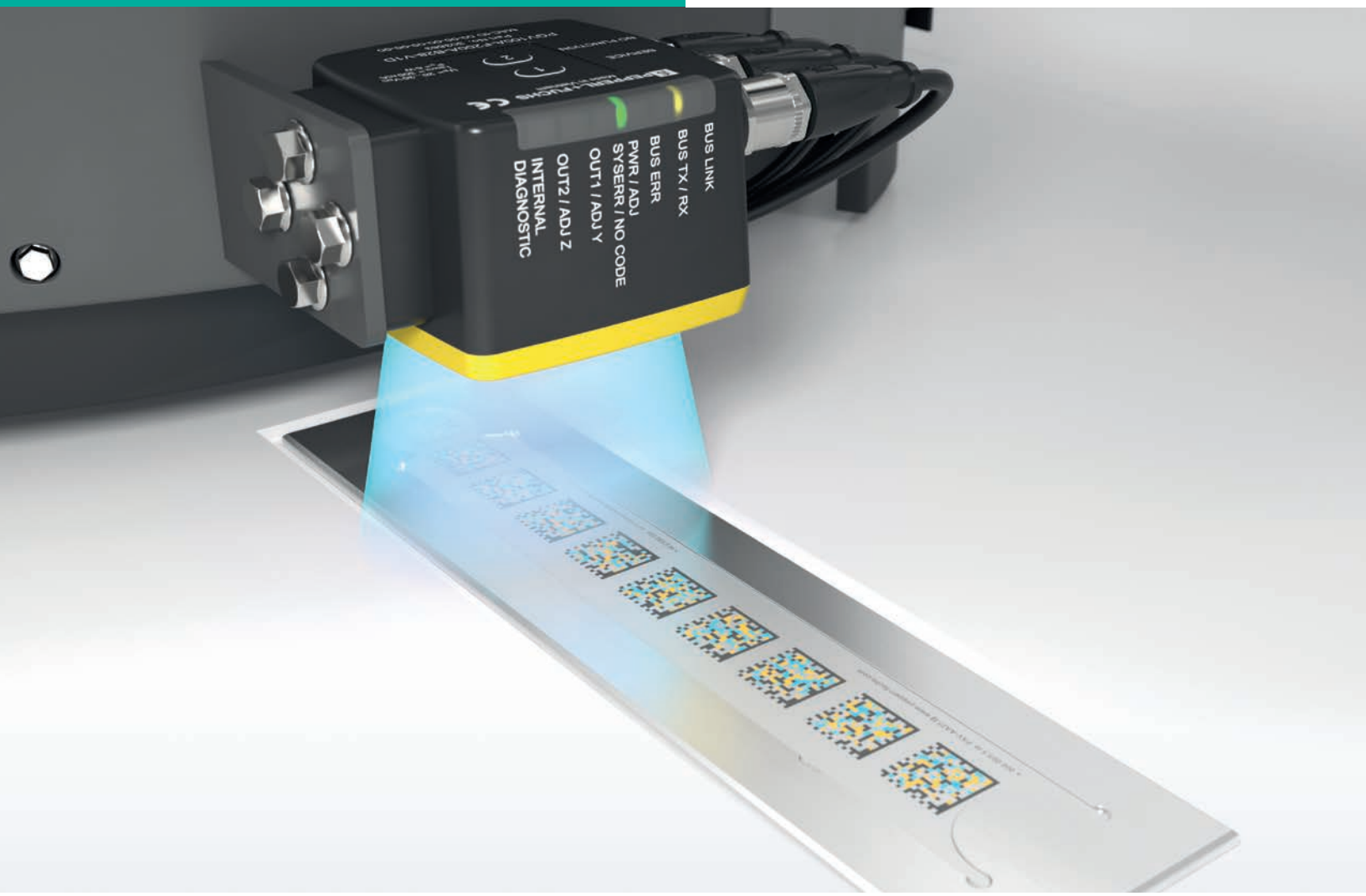
Leading the Way.

From a standard version to a high-end solution—four read heads for top technical performance.

PGV Camera-Based
Track Guidance



Your automation, our passion.

PEPPERL+FUCHS

Position-Guided Vision

The Benchmark for Optical Track Guidance

Optical color-tape tracking for movement, Data Matrix codes for positioning, and control codes for controlling processes: this unique combination brings together the advantages of two high-performance technologies in a single device, ensuring a high degree of process reliability and efficiency.

Innovative Technology for Auto-Guided Transport Systems

The combination of these two technologies in one device opens up new possibilities for optical guidance of auto-guided transport systems (AGTSs). The specified path is followed automatically while the device continuously reports back the speed and position at the same time.

Combined with continuous status feedback, this provides outstanding performance and more secure and efficient processes.

Open Protocol Ensures Flexible Handling

In practical applications, the PGV positioning system is also incredibly versatile. The open protocol makes the technology suitable for all control systems. Integrated interfaces allow easy and quick connection. All common interfaces, including the switching inputs and outputs, are integrated into the sensor housing.

The camera can be parameterized using the vehicle controller, a parameterization tool, or code cards, which makes commissioning very easy.

Rugged and Reliable

The PGV positioning system has powerful LED lighting, which makes it resistant to environmental influences. Neither ambient light nor highly reflective surfaces impair its performance, making it suitable for a range of applications.

With the PGV positioning system, the optics are purely oriented toward the “region of interest” and optimal lighting is selected for the choice of aperture and shutter time. This means that overexposure is physically ruled out and the ambient light cannot affect the reading performance. This eliminates the need for additional contrast tapes.

A wide range of color tapes and dirty or damaged tracks can be safely read through the large reading window. Track widths from 10 mm to 40 mm are easily detected.

Highlights

- Flexible navigation via color tape, Data Matrix codes, or a combination of both—for maximum investment security
- Process reliability is ensured by reliable tracking even on highly reflective surfaces and in the event of dirt or destruction
- No additional contrast tapes required thanks to unique resistance to ambient light > 100,000 lux
- Easy installation and commissioning with plug and play
- Simple expansion or customization of the systems possible

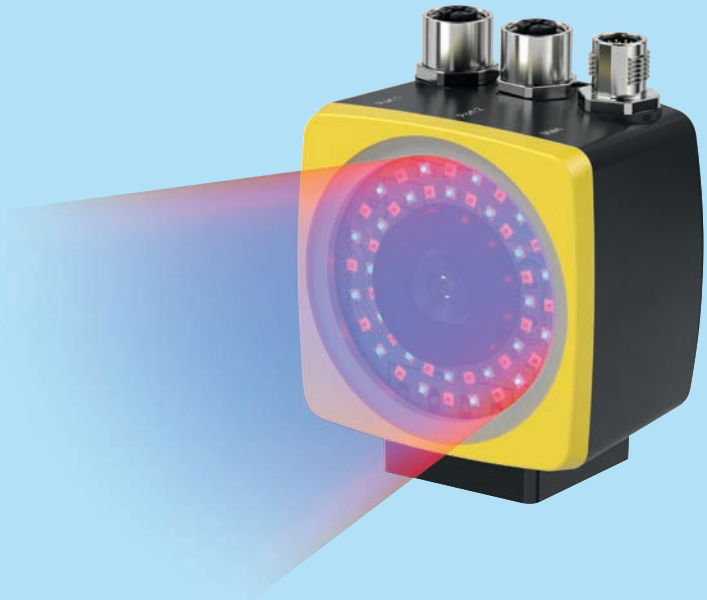
Excerpt of Technical Data	PGV*F200*	PGV100A-F200*	PGV*F213*	PGV*I*F200
Traversing speed	≤ 8 m/s	≤ 8 m/s	≤ 8 m/s	≤ 8 m/s
Light type	Blue/white	Blue/red	Red	Infrared
Depth of focus	± 20 mm	± 30 mm	± 30 mm -15 mm to +25 mm	± 30 mm
Reading distance	100 mm	100 mm	40 mm 100 mm	100 mm 150 mm
Reading range	120 mm x 80 mm	120 mm x 80 mm	80 mm × 60 mm to 120 mm × 80 mm	120 mm × 80 mm to 170 mm × 105 mm
Cycle time	40 ms	25 ms	10–25 ms	10–25 ms
Latency	60 ms	50 ms	20–50 ms	20–50 ms
Accuracy	± 0.2 mm	± 0.2 mm	± 0.2 mm	± 0.2 mm
Positioning targets	Data Matrix code tape Data Matrix tags Data Matrix control codes Color tape	Data Matrix code tape	Data Matrix code tape Data Matrix tags Data Matrix control codes	Data Matrix code tape Data Matrix tags Data Matrix control codes
Other features	Light control, synchronization pulse*, timestamp*, quality values*	SIL 3/PL e	Synchronization pulse, timestamp	No visible light, synchronization pulse*, timestamp*, quality values*

*only available for EtherCAT versions

Position-Guided Vision Portfolio

Highly Specialized Portfolio, Suitable for Every Application

The PGV positioning system from Pepperl+Fuchs comprises four basic device versions that are tailored precisely to the different application requirements. The system therefore offers the right read head for every application, from the standard device to the highly specialized safety version.

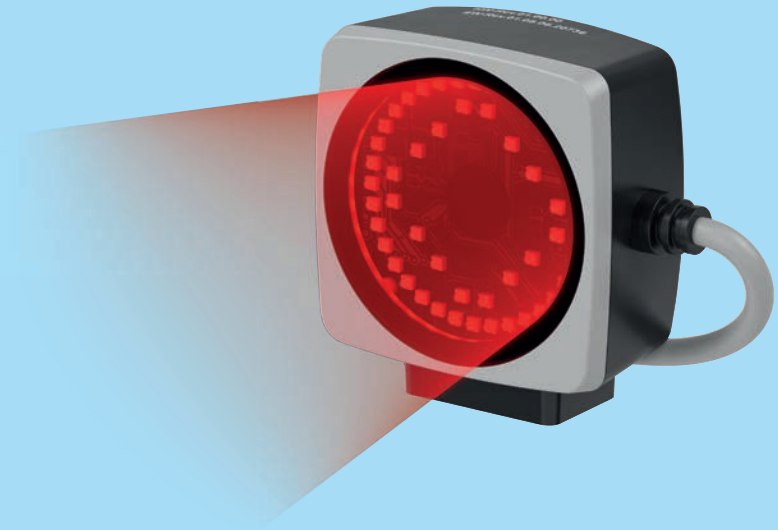


PGV*F200*: The All-Rounder Read Head

The PGV*F200* boasts the ability to choose between navigation via color track tape, Data Matrix code tape, Data Matrix tags, or a combination of these positioning targets. Due to this huge flexibility, the device offers maximum investment security and future-proofing. The extra-large reading window, combined with 2-D image capture, reliably detects damaged or dirty track tapes, and the unique ambient light insensitivity of more than 100,000 lux removes the need for additional contrast tapes. The open protocol of the PGV enables integration into any controller, and the simple installation and commissioning via plug and play ensure highly convenient handling.

PGV100A-F200*: Safe Navigation to SIL 3/PL e Standard with Just One Sensor

The safePGV from Pepperl+Fuchs makes it possible to use a single sensor to achieve safe absolute positioning and identification in line with SIL 3/PL e for the first time. It can be used wherever applications have to meet the highest safety requirements—such as when people may come into contact with the plant and when reliably identifying vehicles and plant areas. The unique combination of a special 2-D read head with a multicolor Data Matrix code tape enables the output of secure data directly from the sensor.



PGV*F213:
Especially Economical and Extra Compact

Where bots (small automated guided vehicles) are used in large numbers, technology-optimized device versions are of particular importance. The PGV*F213 has been specially developed for economical applications and bots in fleet management. The read head works with red light, and navigation is carried out using either Data Matrix tracks or Data Matrix tags. Due to the extra-compact housing design, the device is ideally suited for confined spaces in bots and small AGVs. This device variant is also available with an integrated TCP/IP interface. This enables direct connection to PCs or single-board computers for especially cost-effective applications.

PGV*I*F200:
The Infrared Version

The PGV*I*F200 uses invisible infrared light. This device version is therefore especially suitable for positioning in areas where no visible light may be used. The absolutely reliable navigation of this PGV is carried out using either Data Matrix tracks or Data Matrix tags.

Exact positioning and route tracking via Data Matrix code tape

Reliable tracking of different tape widths— from 10 mm to 40 mm

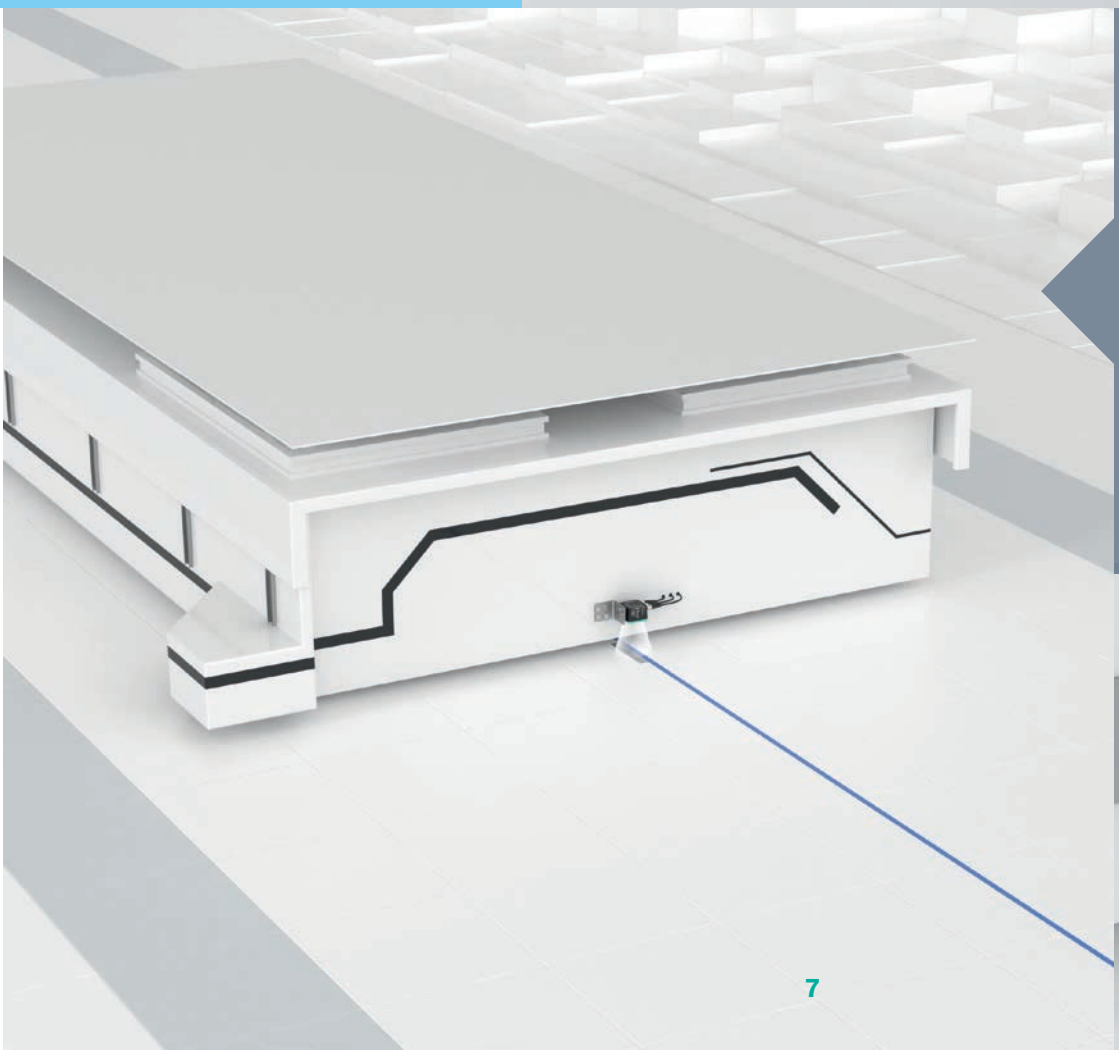
Grid navigation on up to 100,000,000 Data Matrix tags

Seamless tracking of damaged or dirty track tapes and Data Matrix code tapes

Rugged metal Data Matrix code bars and tag plates

Reliable track guidance even on highly reflective surfaces

PGV with infrared light for applications where conventional light cannot be used



Trigger-specific control processes along the route of the auto-guided transport system using Data Matrix control codes

Plastic and Metal Positioning Targets

Continuous color tape

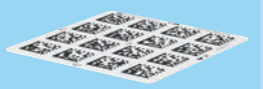
Data Matrix code tape

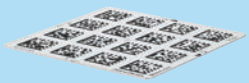
Continuous tape

Length: 100 mm,
200 mm, or 500 mm

Data Matrix control codes

Data Matrix tags





Data Matrix code tape for safety applications

Continuous tape

Length: 100 mm,
200 mm, or 500 mm

Design

F200

F200A

F200

F200A

F213

F200

F200A

Interfaces

PROFINET RS485

CANopen EtherCAT

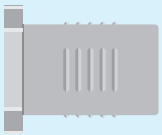
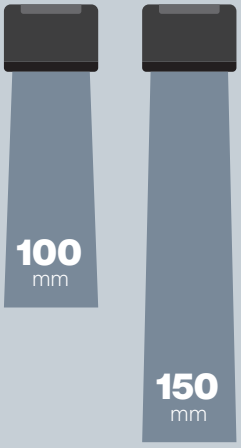
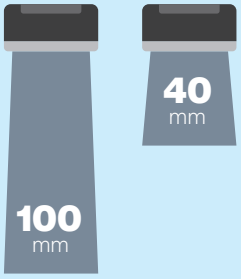
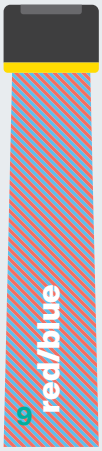
PROFIBUS PROFINET

CANopen EtherCAT

EtherNet/IP PROFINET

CANopen RS485

PROFINET PROFIsafe

	Connection	Reading distance	Light type	Special Features
EtherNet/IP RS485	 M12 connector plug			Quality values* 00:00:05 Timestamp* Synchronization pulse* ≤8 m/s Traversing speed *only available for EtherCAT versions
	 M12 connector plug			Quality values* 00:00:05 Timestamp* Synchronization pulse* ≤8 m/s Traversing speed IR Infrared light (for plastic positioning targets) *only available for EtherCAT versions
TCP/IP	 Fixed cable			Construction depth: 35 mm 00:00:05 Timestamp Synchronization pulse ≤8 m/s Traversing speed
	 M12 connector plug			SIL 3 PL e ≤8 m/s Traversing speed

Plastic and Metal Positioning Targets

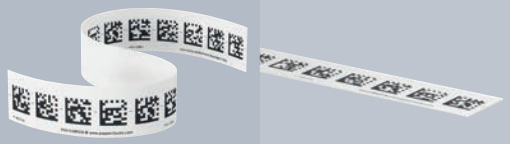
Continuous color tape

Data Matrix code tape

Continuous tape

Length: 100 mm,
200 mm, or 500 mm

Data Matrix control codes



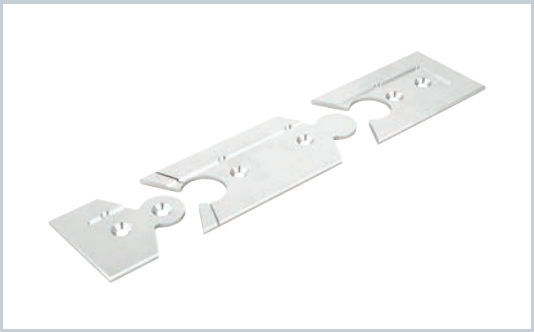
Data Matrix code tape for safety applications

Continuous tape

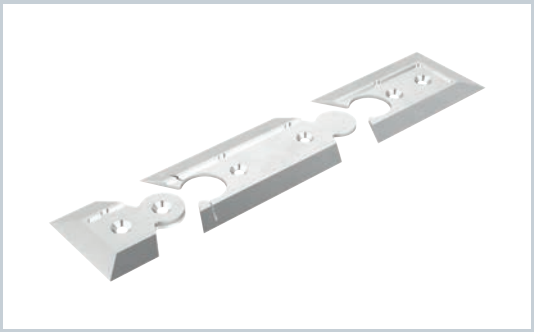
Length: 100 mm,
200 mm, or 500 mm

Data Matrix tags

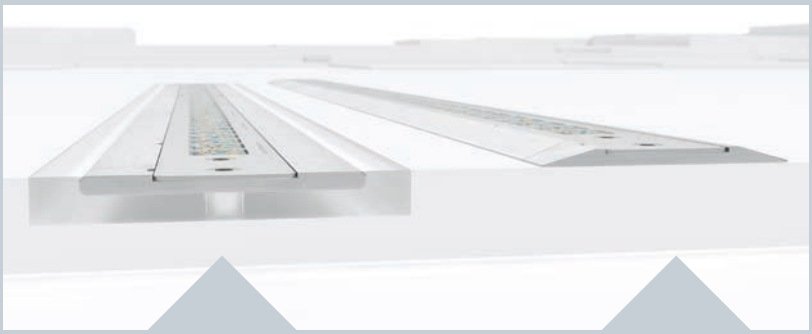
Mounting for Metal Positioning Targets Accessories



Countersunk profile rail for metal code tapes with start and end segment



Drive-over profile rail for metal code tapes with start and end segment

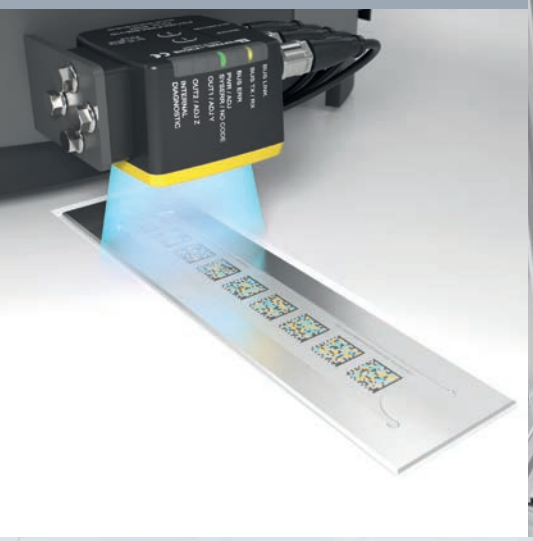


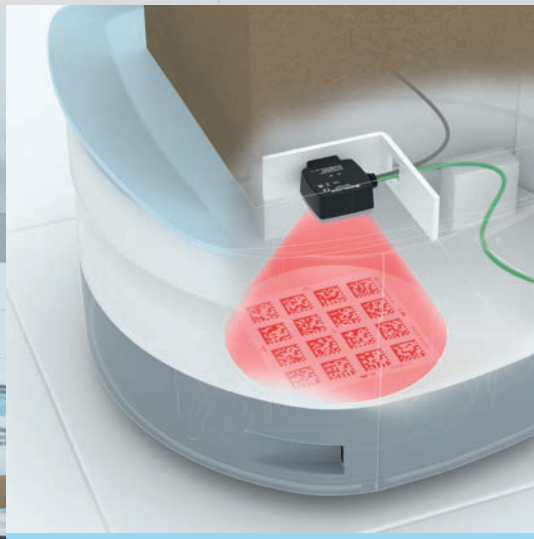
Continuous countersunk profile rail for metal code tapes (Length: 100 mm, 200 mm, 500 mm)

Continuous drive-over profile rail for metal code tapes (Length: 100 mm, 200 mm, 500 mm)

Countersunk profile plate for metal tags

Drive-over profile plate for metal tags





Your automation, our passion.

- Industrial Sensors
- Industrial Communication and Interfaces
- Enterprise Mobility
- Hazardous Area Products and Solutions

www.pepperl-fuchs.com

Subject to modifications • © Pepperl+Fuchs
Printed in USA • Part. No. 70189884 01/25 00

Pepperl+Fuchs Quality
Download our latest policy here:

www.pepperl-fuchs.com/quality

PEPPERL+FUCHS