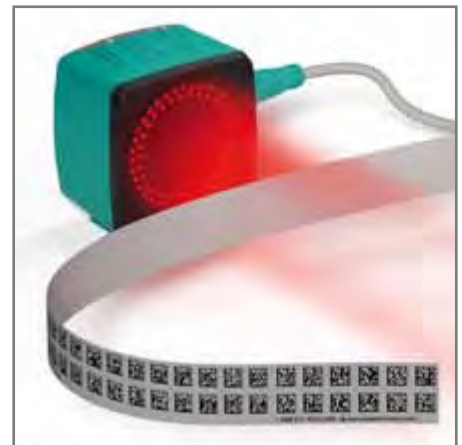# DATA MATRIX POSITIONING SYSTEM PCV

2-D CODE BAND AND THE LATEST CAMERA TECHNOLOGY ENSURE RELIABLE POSITION DETECTION

PEPPERL+FUCHS

SENSING YOUR NEEDS

Redundancy increases reliability in practice

READING A DATA MATRIX CODE BAND TO DETECT THE POSITION

The data bits of the Data Matrix code are divided into two dimensions and provide a high degree of data density over a small surface area.

Combined with the latest camera technology and the Data Matrix code band, the PCV read head is suitable for a wide range of positioning tasks in various applications. The unique code band is available in lengths of up to 10 km and is suitable for use in material handling, the automotive industry, elevator technology and general machine construction. Several Data Matrix code lines on the band also allow the evaluation of the vertical position. Benefit from the many years of practical experience that Pepperl+Fuchs has gained in the area of Data Matrix technology and position detection.

APPLICATION EXAMPLES

MONORAIL CONVEYOR

The Data Matrix code band is affixed directly above the power rails and the PCV read head attached to the hanger. Each hanger is optimally positioned.

SKID CONVEYOR

Due to simple attachment of the code band and insensitivity, the PCV system is suitable for positioning skids in construction applications.

HIGH-BAY WAREHOUSE

The Data Matrix positioning system is always the best choice for moving and positioning in an X or Y-direction.

CUSTOMER BENEFITS

- Positioning along 2 axes
- Absence of moving parts for a high degree of mechanical robustness
- Long service life due to omission of laser diodes
- Insensitive to dirt and damage to the code band
- Consistent laying of the code band
- Extremely narrow code band

- Small read field enables the smallest curve radii as well as inclines and declines
- Event markers for generating control signals
- DC output and input signals can be activated in freely selectable positions
- Parameterization the camera using a PC or code cards
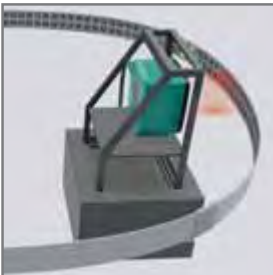
SMALLEST CURVE RADII

Small reading window enables smallest curve radii

MAXIMUM DATA INTEGRITY

The Data Matrix code offers a high degree of data integrity
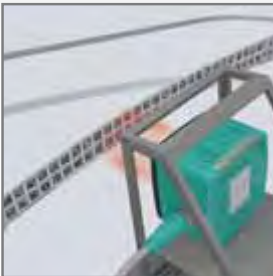
IMPLEMENTATION OF INCLINES AND DECLINES

Inclines and declines can be implemented easily using several codes positioned above one another

PARTIALLY DESTROYED CODE BAND LEGIBLE

Minimum of 3 codes in the reading window in X-direction – only one code must be legible

X-DIRECTION: 0 TO 10,000 M

Positioning the travel path in X-direction from 0 to 10,000 m with maximum resolution

UP TO 20 MM OBSCURED

Up to 20 mm of the code band can be obscured depending on the code redundancy

Y-DIRECTION: SEVERAL CODES ABOVE ONE ANOTHER

Positioning in Y-direction for height measurement with several codes arranged above one another

EVENT MARKERS FOR GENERATING CONTROL SIGNALS

Marker strip can be affixed and parameterized to generate control signals

TECHNICAL DATA AND PRODUCT SELECTION

Code band length .... 0…10,000 m
Code type .... Data Matrix code
Speed .... 12.5 m/s (regulated)
Resolution .... 0.2 or 1 mm
Read distance .... 80 mm
Depth of field .... ± 15 mm

Read window .... 40 mm x 25 mm

Radius .... ≥ 0.1 m horizontal
≤ 30° incline or decline (vertical)
Supply voltage .... 10…30 V DC, 24 V DC ± 15% PELV
Power consumption .... P0 ≤ 3 W
Operating current .... 0…200 mA
Current consumption .... ≤ 250 mA
Query rate .... min. 2 ms (at 230,400 bit/s)
LED indicator .... 7 LEDs (communication, alignment aid, status messages)

Temperature range .... -20 °C … 60 °C (noncondensing)
Storage temperature .... -40 °C … 85 °C
Housing material .... PC/ABS
Weight .... approx. 160 g

MODEL NUMBER	DESCRIPTION
PCV80-F200-R4-V19	Data Matrix read head with RS485 interface
PCV100M-CA20-…	Data Matrix code band 100 m (self-adhesive)
V19-G-2M-PUR ABG	Connecting cable, straight, 2 meters (other lengths available)

The Data Matrix positioning system uses individual Data Matrix codes arranged beside and above one another in the shape of a code band that serves as an information carrier. The PCV read head uses the latest camera technology to detect codes two-dimensionally, which are then decoded and finally output as an exact position in X and Y coordinates.

LED indicator

2-D camera

Bus interface

Self-adhesive Data Matrix code band

Robust enclosure

Read elements

2-row Data Matrix code

Code band up to 10,000 m in length
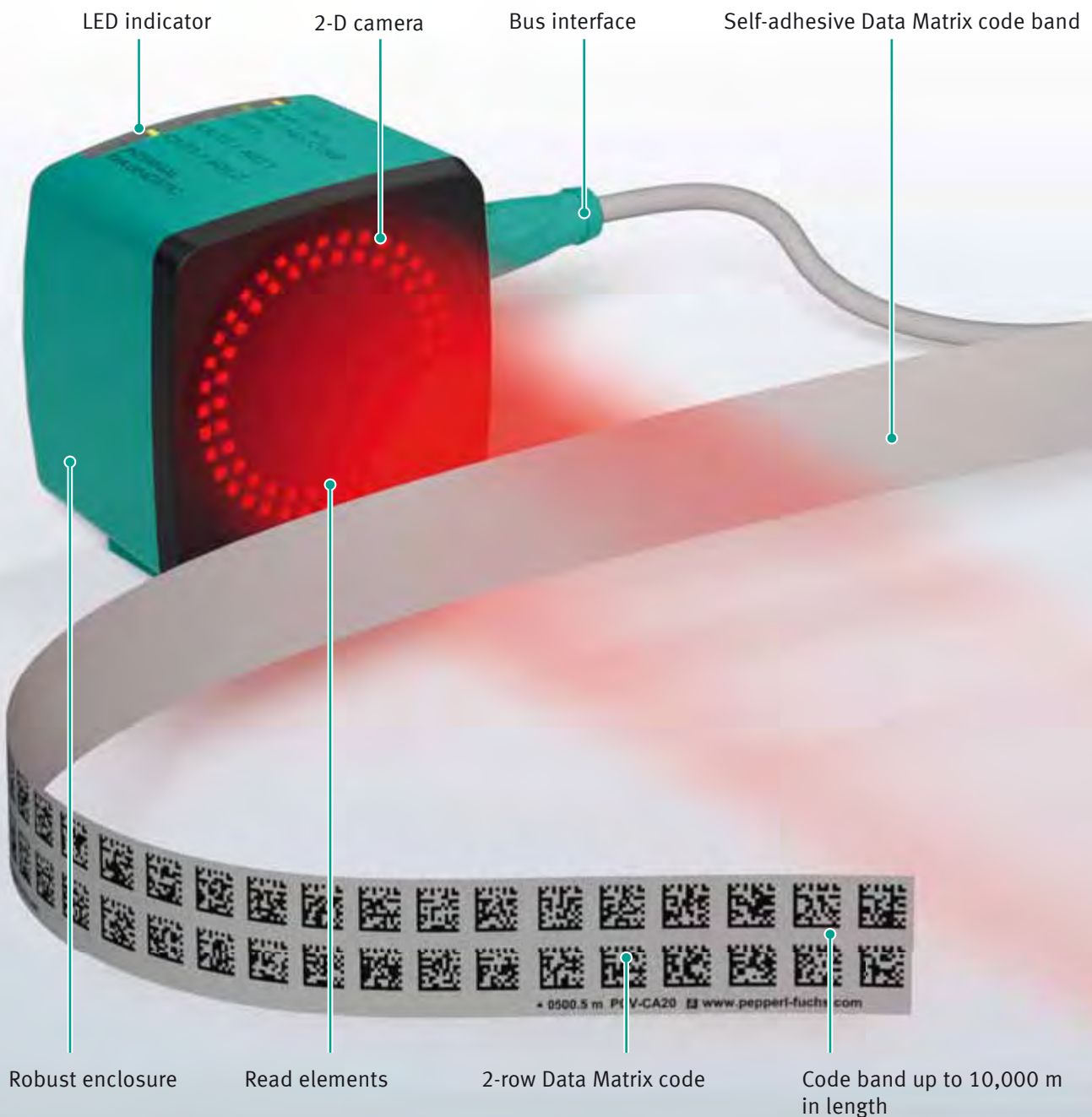
FACTORY AUTOMATION – SENSING YOUR NEEDS

Pepperl+Fuchs sets the standard in quality and innovative technology for the world of automation. Our expertise, dedication, and heritage of innovation have driven us to develop the largest and most versatile line of industrial sensor technologies and interface components in the world. With our global presence, reliable service, and flexible production facilities, Pepperl+Fuchs delivers complete solutions for your automation requirements – wherever you need us.

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