



### Model Number

#### ODT-MAC401-ND-RD

Stationary high-speed read device for code speeds up to 20 m/s and 60 fps, Data Matrix ECC 200 Code, angled line of sight, VGA resolution, Ethernet, RS 232

### Features

- Up to 60 readings per second
- Movement speeds of up to 20 m/s
- Omni-directional reading
- Evaluation of up to 256 gray values with adaptive gray value threshold
- VGA output
- Simple focussing via laser pointers
- Integrated error image memory

### Function

The stationary reader is a reading system for the recognition of data matrix codes.

With a powerful signal processor and optimized decoding algorithms, the device delivers extremely high reading speeds.

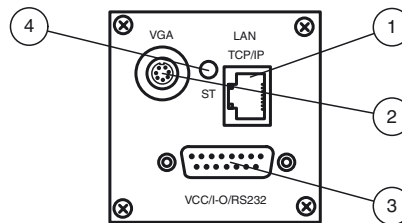
The configuration is easy and comfortable via the standard Ethernet interface using a standard web browser or via serial port.

The device is supported by an integrated laser pointer and the VGA video output. In addition, the device has an integrated error image memory.

Typical operative range of stationary readers are:

- Document handling
- Printing machines
- Identification in packaging and warehousing technology
- Detection of PCBs

### Indicating / Operating means



|   |                  |
|---|------------------|
| 1 | Socket LAN       |
| 2 | Socket VGA       |
| 3 | Plug 24VDC + IO  |
| 4 | Status LED       |
|   | yellow/red/green |

### Electrical connection

#### VGA



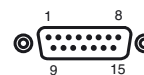
| Pin | Signal    |
|-----|-----------|
| 1   | OUT VSYNC |
| 2   | GND       |
| 3   | OUT R     |
| 4   | OUT G     |
| 5   | GND       |
| 6   | OUT B     |
| 7   | OUT HSYNC |

#### LAN



| Pin | Signal       |
|-----|--------------|
| 1   | TX+ Ethernet |
| 2   | TX- Ethernet |
| 3   | RX+ Ethernet |
| 4   | NC           |
| 5   | NC           |
| 6   | RX- Ethernet |
| 7   | NC           |
| 8   | NC           |

#### VCC/I-O/RS232



| Pin | Signal | Pin | Signal   |
|-----|--------|-----|----------|
| 1   | GND    | 9   | OUT 1    |
| 2   | GND    | 10  | OUT 2    |
| 3   | GND IO | 11  | IN 1     |
| 4   | +UB    | 12  | NC       |
| 5   | +UB    | 13  | TX RS232 |
| 6   | +UB IO | 14  | RX RS232 |
| 7   | NC     | 15  | IN 3     |
| 8   | IN 2   |     |          |

**Technical data****General specifications**

|                              |                                                                        |
|------------------------------|------------------------------------------------------------------------|
| Light type                   | Integrated LED lightning (red)                                         |
| Laser nominal ratings        |                                                                        |
| Note                         | LASER LIGHT , DO NOT STARE INTO BEAM                                   |
| Laser class                  | 2                                                                      |
| Wave length                  | 650 nm                                                                 |
| Beam divergence              | < 1.5 mrad                                                             |
| Maximum optical power output | 0.5 mW                                                                 |
| Symbologies                  | Data Matrix ECC 200                                                    |
| Read distance                | 60 mm                                                                  |
| Depth of focus               | ± 5 mm                                                                 |
| Reading field                | 30 mm x 20 mm                                                          |
| Modul size                   | ≥ 0.2 mm                                                               |
| Sensor principle             | Camera system                                                          |
| Evaluation frequency         | max. 60 Hz                                                             |
| Target velocity              | triggered ≤ 20 m/s                                                     |
| Data Matrix                  |                                                                        |
| Symbol size                  | rectangular up to 48 x 48 modules<br>rectangular up to 16 x 48 modules |
| Data format                  | ASCII, C40, Text, X12, Edifact, Base 256 , all according to ISO 646    |
| Data capacity                | 348 numerical, 259 ASCII, 172 Byte                                     |
| Orientation                  | omnidirectional                                                        |

**Nominal ratings**

|                  |                                                        |
|------------------|--------------------------------------------------------|
| Camera           |                                                        |
| Type             | CMOS , Global shutter                                  |
| Number of pixels | 752 x 480 pixels                                       |
| Gray scale       | 256                                                    |
| Image recording  | real-time , Program-controlled or triggered externally |

**Indicators/operating means**

|               |                       |
|---------------|-----------------------|
| LED indicator | for good/poor reading |
|---------------|-----------------------|

**Electrical specifications**

|                        |                |                      |
|------------------------|----------------|----------------------|
| Operating voltage      | U <sub>B</sub> | 24 V DC ± 15% , PELV |
| No-load supply current | I <sub>0</sub> | max. 250 mA          |
| Power consumption      | P <sub>0</sub> | 6 W                  |

**Interface**

|               |                       |
|---------------|-----------------------|
| Physical      | RS 232                |
| Protocol      | ASCII                 |
| Transfer rate | 9600 ... 115200 Bit/s |
| Cable length  | max. 30 m             |

**Output**

|                   |                                                                             |
|-------------------|-----------------------------------------------------------------------------|
| Number/Type       | 2 electronic outputs, PNP , optically decoupled<br>optional up to 4 outputs |
| Switching voltage | to be applied externally 24 V ± 15 % PELV                                   |
| Switching current | 100 mA each output                                                          |
| Cable length      | max. 30 m                                                                   |

**Output 1**

|             |                                   |
|-------------|-----------------------------------|
| Output type | Video output, RGB (75 Ohm), 1 Vpp |
| Resolution  | VGA, 800 x 600 pixels             |

**Ambient conditions**

|                     |                               |
|---------------------|-------------------------------|
| Ambient temperature | 0 ... 45 °C (32 ... 113 °F)   |
| Storage temperature | -20 ... 60 °C (-4 ... 140 °F) |

**Mechanical specifications**

|                   |                                                                                                                  |
|-------------------|------------------------------------------------------------------------------------------------------------------|
| Protection degree | IP20                                                                                                             |
| Connection        | Video: 7-pin socket<br>Power supply/interfaces/inputs and outputs: Sub-D 15-pin UNC<br>LAN : RJ-45 socket, 8-pin |
| Material          |                                                                                                                  |
| Housing           | powder coated diecast zinc                                                                                       |
| Mass              | approx. 760 g                                                                                                    |

**Compliance with standards and directives**

|                           |                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Directive conformity      |                                                                                                                                      |
| EMC Directive 2004/108/EC | EN 61326-1 , EN 61000-6-4                                                                                                            |
| Standard conformity       |                                                                                                                                      |
| Noise immunity            | EN 61326-1                                                                                                                           |
| Emitted interference      | EN 61000-6-4                                                                                                                         |
| Protection degree         | EN 60529                                                                                                                             |
| Laser class               | IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007 |

**Accessories****ODZ-MAC-CAB-VIDEO**

Video cable VGA

**ODZ-MAC-CAB-15POL-2,5M-FEMALE**

Connecting cable Sub-D jack, 15-pin

**V45-G-10M-V45-G**

Network cable RJ-45, Category 5

**ODZ-TRIGGERBOX-SK**

Trigger box for fixed mounted readers

**ODZ-MAC-CAB-15POL-5M-FEMALE**

Connecting cable Sub-D jack, 15-pin

**ODZ-MAC-PWR-24V**

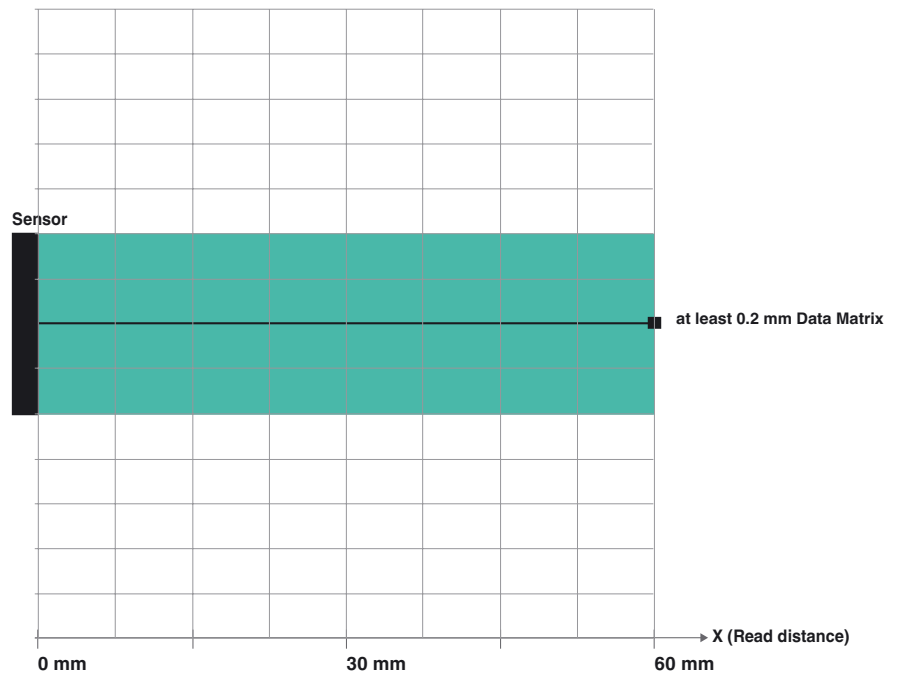
24 V DC power supply

**ODZ-MAC-CAB-24V-R2-2M**

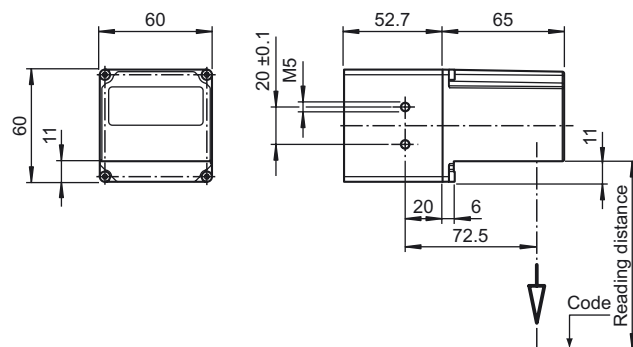
Connecting cable for power supply/RS 232

Other suitable accessories can be found at  
[www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

## Read range for various symbologies



## Dimensions



## Laser notice laser class 2

- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Caution: Do not look into the beam!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.