



Industrial imaging



# Augmented reality: mobile 3D smart camera with overlay function



Camera systems for  
mobile machines

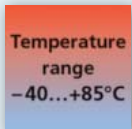


**3D sensor system with integrated 2D camera and overlay function**

**Indication of warnings and obstacles in the live view**

**Signal processing in the sensor, no external process unit required**

**Easy adjustment via ifm Vision Assistant**



## Augmented reality

The 3D smart camera is the first 3D sensor system with integrated 2D camera. The video image is displayed with real-time graphics, symbols or texts. They are either triggered by the integrated driver assistance system or by the machine controller via CAN. Thus, the user can always see all relevant warnings or other relevant details in the camera image.

## Integrated assistance system

In addition to the 3D and 2D image sensor a complete evaluation system is integrated in the sensor system. This system provides an independent assistance system for collision avoidance for the user. Set-up only requires just a few steps using the ifm Vision Assistant PC software. In addition to the analogue video output the smart camera also features a CAN and Ethernet UDP interface. The system can use this interface to supply warnings in critical situations autonomously.



| Resolution<br>[pixels] | Angle of aperture<br>horizontal x vertical<br>[°] | Angle of aperture<br>2D<br>[°] | Illumination | Max.<br>sampling rate<br>[Hz] | Order<br>no. |
|------------------------|---|--------------------------------|--------------|-------------------------------|--------------|
|------------------------|---|--------------------------------|--------------|-------------------------------|--------------|

**PMD 3D sensor · Type O3M · M12 connector**

|         |         |    |  |          |               |
|---------|---------|----|--|----------|---------------|
| 64 x 16 | 70 x 23 | 90 | Ext. illumination<br>required (O3M950) | 25/33/50 | <b>O3M251</b> |
|---------|---------|----|--|----------|---------------|

**Connection technology**

| Type | Description   | Order no.     |
|------|---|---------------|
|      | MCI cable, connection sensor / system illumination unit, 0,25 m               | <b>E3M120</b> |
|      | MCI cable, connection sensor / system illumination unit, 1 m                  | <b>E3M121</b> |
|      | MCI cable, connection sensor / system illumination unit, 2 m                  | <b>E3M122</b> |
|      | MCI cable, connection sensor / system illumination unit, 3 m                  | <b>E3M123</b> |
|      | M12 video connection cable, connection sensor / display PDM360, 5 m           | <b>E3M151</b> |
|      | M12 video connection cable, connection sensor / display PDM360, 11 m          | <b>E3M152</b> |
|      | M12 video connection cable, connection sensor / display PDM360, 16 m          | <b>E3M153</b> |
|      | M12 video connection cable, connection sensor / display PDM360, 21 m          | <b>E3M154</b> |
|      | M12 video extension cable, 5 m  | <b>E3M159</b> |
|      | M12 video adapter cable / Cinch plug, for connection of a video grabber, 1 m  | <b>E3M160</b> |
|      | M12 socket, voltage supply system illumination unit, 2 m, PUR cable, 4 poles  | <b>E3M131</b> |
|      | M12 socket, voltage supply system illumination unit, 5 m, PUR cable, 4 poles  | <b>E3M132</b> |
|      | M12 socket, voltage supply system illumination unit, 10 m, PUR cable, 4 poles | <b>E3M133</b> |
|      | Ethernet, cross-over patch cable, 2 m, PVC cable, M12 / RJ45                  | <b>E11898</b> |
|      | Ethernet, cross-over patch cable, 10 m, PVC cable, M12 / RJ45                 | <b>E12204</b> |
|      | Ethernet, cross-over patch cable, 20 m, PVC cable, M12 / RJ45                 | <b>E12205</b> |
|      | CAN jumper, screened, 2 m, PUR cable, M12 plug / M12 socket                   | <b>E11593</b> |
|      | CAN jumper, screened, 5 m, PUR cable, M12 plug / M12 socket                   | <b>E11594</b> |
|      | CAN jumper, screened, 10 m, PUR cable, M12 plug / M12 socket                  | <b>E11595</b> |

**Further technical data  
O3M251**

|  |   |
|--|---|
| Type of sensor                                   | 1/4" 4:3 VGA CMOS image sensor Color    |
| PAL resolution [pixels]                          | 640 x 480                               |
| Housing material                                 | diecast aluminium                       |
| Connection                                       | M12 connector                           |
| Protection rating, protection class              | IP 67 / IP 69K, III                     |
| Operating voltage [V DC]                         | 9...32                                  |
| Current consumption sensor [mA]                  | < 500                                   |
| Current consumption system illumination unit [A] | < 5                                     |
| Ambient temperature [°C]                         | -40...85                                |
| Storage temperature                              | -40...105                               |
| Interfaces                                       | 1x CAN,<br>1 x fast Ethernet,<br>1x PAL |
| Supported CAN protocols                          | CANopen,<br>SAE J 1939                  |
| Standards and tests (extract)                    | CE,<br>E1 (UN-ECE R10)                  |

**Accessories**

| Type | Description   | Order no.     |
|------|---|---------------|
|      | IR system illumination unit (850 nm) for mobile 3D sensors, angle of aperture 70 x 23 | <b>O3M950</b> |
|      | CAN/RS232 USB interface CANfox  | <b>EC2112</b> |
|      | Adapter cable set for CANfox  | <b>EC2114</b> |
|      | Operating software for vision sensors   | <b>E3D300</b> |
|      | U-shaped bracket, suitable for sensor or illumination                                 | <b>E3M100</b> |
|      | U-shaped bracket, suitable for sensor or illumination unit                            | <b>E3M102</b> |
|      | Weather protective cover (the article E3M100 or E3M102 is required for installation)  | <b>E3M101</b> |

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