



Industrial imaging

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



Camera systems for  
mobile machines

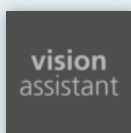
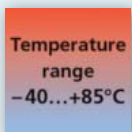
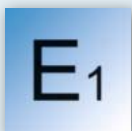


**3D sensor system with integrated 2D camera and overlay function**

**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 [pixels]	Angle of aperture horizontal x vertical [°]	Angle of aperture 2D [°]	Ext. illumination required [Order no.]	Max. sampling rate [Hz]	Order no.
<b>PMD 3D sensor · Type O3M · M12 connector</b>					
64 x 16	70 x 23	90	O3M950	25/33/50	O3M251
64 x 16	95 x 32	120	O3M960	25/33/50	O3M261
64 x 16	97 x 44	155	O3M970	25/33/50	O3M271

## Connection technology

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

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	[°C]	-40...105
Interfaces	1x CAN, 1 x fast Ethernet, 1x PAL	
Supported CAN protocols	CANopen, SAE J 1939	
Standards and tests (extract)	CE, E1 (UN-ECE R10)	

## Accessories

Type	Description	Order no.
	IR system illumination unit (850 nm) angle of aperture [°] 70 x 23	O3M950
	IR system illumination unit (850 nm) angle of aperture [°] 95 x 32	O3M960
	IR system illumination unit (850 nm) angle of aperture [°] 97 x 44	O3M970
	CAN/RS232 USB interface CANfox	EC2112
	Adapter cable set for CANfox	EC2114
	Operating software for vision sensors	E3D300
	U-shaped bracket, suitable for sensor or illumination unit	E3M102
	Weather protective cover (the article E3M100 or E3M102 is required for installation)	E3M101