PHYTEC Messtechnik GmbH
www.phytec.de

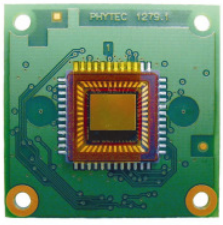
VM-006-BW-xxx

Monochrome CMOS Camera Module / Camera with Digital Interface

- image sensor: 1/2", SXGA, 1280(H) x 1024 (V), APTINA MT9M001
- pixel size: 5.2µm x 5.2µm
- data output: 10 bit digital, monochrom
- frame rate: 30 frames per second
- dynamic range: 68.2 db
- shutter: rolling reset
- camera control: numerours register settings available by I²C bus
- power supply: 3.3 V DC (±10%)
- power consumption: 363 mW
- synchronization mode: master mode
- operation temperature: 0°C ... +70°C
- dimensions: 34 mm x 34 mm x 6 mm (without lens holder)
- mounting: 4 x M2.5 (PCB)
- weight: 7g (PCB)
- connector: 33pin. FFC/FPC, 0.5mm pitch, 0.3mm thick, contact position bottom
- mating cable: 33wire. FFC cable 0,.mm (e.g. PHYTEC part no. WF062=120mm, WF043 = 200mm, WF046 = 300mm)
- lens holder: VM-006-xxx-H fits to C-Mount and CS-Mount lenses
  VM-006-xxx-M12 fits to M12 / 0.5 lenses (S-Mount)

All types of the camera board VM-006-xxx can directly be connected to a microcontroller equipped with an appropriate digital camera interface. PHYTEC offers for example the PXA270/320 and i.MX31/27 carrier-/development boards, which allow a direct connection of the VM-006-xxx. Driver software and demo applications for various controllers are included.

Camera PCB:



Front

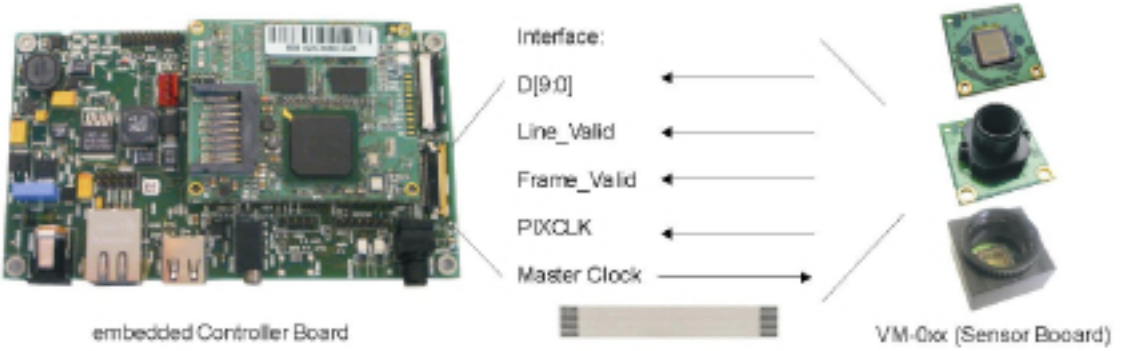
Rear

Camera with lens holder:

-H = camera with lens holder for C/CS-mount lenses

-M12 = camera with lens holder for M12 / 0.5 lenses (S-Mount)

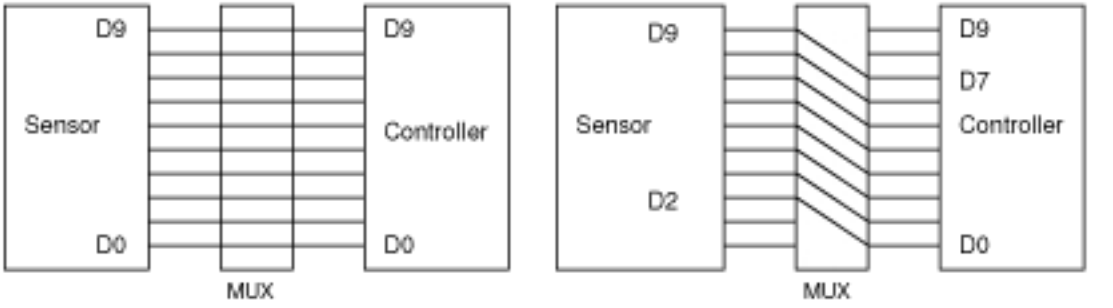
Interface



Ordering options

VM-006-BW	camera board with MT9M001 1.3 Megapixels, monochrome
VM-006-BW-H	camera board with MT9M001 1.3 Megapixels, monochrome, with C/CS-mount lens holder, **without** lens
VM-006-BW-M12	camera board with MT9M001 1.3 Megapixels, monochrome, with M12 lens holder, **without** lens

Note: All types of VM-006 can be ordered with the option **–MUX**.
MUX-boards are equipped with an addition multiplexer, which can be controlled by the I2C interface. This multiplexer allows to shift the upper 8 data lines D[9..2] to D[7..0]. This option is useful for applications which need both color depths (e.g. 8 bit for display image data and 10 bit for recording or measurement) and the controller interface the shift not supported (e.g. PXA270 / PXA320).



VM-006-BW-MUX	camera board with MT9M001 1.3 Megapixels, monochrome, MUX
VM-006-BW-MUX-H	camera board with MT9M001 1.3 Megapixels, monochrome, MUX, with C/CS-mount lens holder, **without** lens
VM-006-BW-MUX-M12	camera board with MT9M001 1.3 Megapixels, monochrome, MUX, with M12 lens holder, **without** lens

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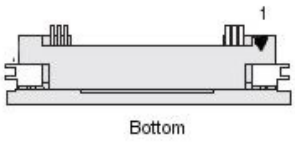
Pinout of the camera connector

33pol. FFC/FPC, 0.5mm pitch, 0.3mm thick, contact position bottom



Camera Board VM-006-xxx			
Pin	**Dir**	**Signal Name**	**Description**
1	PWR	Vcc	+3,3 V Supply Input
2		Vcc	
3	I	CAM_RST	
4	-	GND	
5	I/O	CAM_SDA	SDA, I²C
6	IN	CAM_SCL	SCL, I²C
7	IN	CAM_IO	Trigger or I/O at connector X104
8	-	GND	
9	I/O	CAM_FV	VSYNC
10	I/O	CAM_LV	HSYNC
11	-	GND	
12	OUT	CAM_DD9	D9
13	OUT	CAM_DD8	D8
14	-	GND	
15	OUT	CAM_DD7	D7
16	OUT	CAM_DD6	D6
17	-	GND	
18	OUT	CAM_DD5	D5
19	OUT	CAM_DD4	D4
20	-	GND	
21	OUT	CAM_DD3	D3
22	OUT	CAM_DD2	D2
23	-	GND	
24	OUT	CAM_DD1	D1
25	OUT	CAM_DD0	D0
26	-	GND	
27	I/O	CAM_PCLK	PCLK
28	-	GND	
29	IN	CAM_MCLK	MCLK
30	-	GND	
31	-	GND	
32	IN	CAM_/OE	/OE (default not connected)
33	PWR	Vcc	+3,3 V Supply Input

Dimensions

PCB outline ± 0,25mm
drill holes ± 0,1mm

The optical center is located in the center of the camera board. The connector is mounted on the backside, cable connection from the top. Direction of pixel readout can be set by software, the image can be horzontally and vertically mirrored.
The lower mounting holes are metal plated and can be connected to the board's ground plane by capacitors.