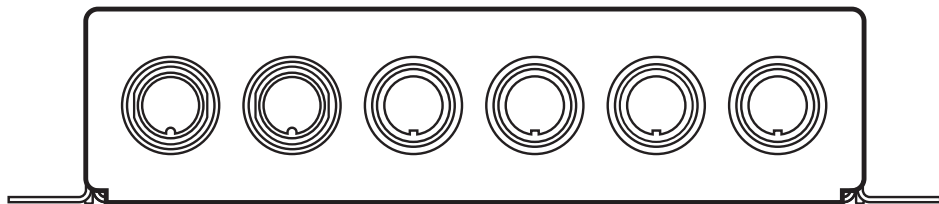




Operating instructions
MultiViewBox
E2M250

UK

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1 Preliminary note

1.1 Symbols used

- ▶ Instructions
- > Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference



Important note

Non-compliance may result in malfunction or interference.



Information

Supplementary note

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1.2 Warnings used

CAUTION

Warning of personal injury.

Slight reversible injuries may result.

2 Safety instructions

2.1 General

These instructions are an integral part of the device. They contain texts and figures concerning the correct handling of the device and must be read before installation or use.

Observe the operating instructions. Non-observance of the instructions, operation which is not in accordance with use as prescribed below, wrong installation or incorrect handling can seriously affect the safety of operators and machinery.

2.2 Target group

These instructions are intended for authorised persons according to the EMC and low-voltage directives. The device must be installed, connected and put into operation by a qualified electrician.

2.3 Electrical connection

Disconnect the unit externally before handling it. If necessary, also disconnect any independently supplied output load circuits.

If the device is not supplied by the mobile on-board system (12/24 V battery operation), it must be ensured that the external voltage is generated and supplied according to the criteria for safety extra-low voltage (SELV) as this voltage is supplied without further measures to the connected controller, the sensors and the actuators.

The wiring of all signals in connection with the SELV circuit of the device must also comply with the SELV criteria (safety extra-low voltage, safe electrical isolation from other electric circuits).

If the supplied SELV voltage is externally grounded (SELV becomes PELV), the responsibility lies with the user and the respective national

installation regulations must be complied with. All statements in this document refer to the device the SELV voltage of which is not grounded. The connection terminals may only be supplied with the signals indicated in the technical data and/or on the device label and only the approved accessories of ifm electronic may be connected.

2.4 Tampering with the unit

In case of malfunctions or uncertainties please contact the manufacturer. Any tampering with the device can seriously affect the safety of operators and machinery. This is not permitted and leads to the exclusion of any liability and warranty claims.

3 Functions and features

The E2M250 MultiViewBox enables the visualisation of up to 4 camera images in one process and dialogue module. The MultiViewBox summarises the PAL input signals to the camera connections C1-C4 and outputs them at the connection OUTPUT as a PAL signal.

The following cameras can be connected at the connections C1-C4:

- O2M2xx

A process and dialogue module can be connected to the connection OUTPUT (e.g. CR1083).

Via the connection INPUT:

- the MultiViewBox is supplied with voltage,
- the visualisation of the camera image is controlled.

Because of the requirements for electromagnetic interference emissions, the MultiViewBox is intended for use in industrial environments. The MultiViewBox is not designed for use in domestic areas.



The MultiViewBox may only be used under the operating conditions specified in the data sheet.

4 Items supplied

The following items are supplied with the MultiViewBox:

- E2M250 MultiViewBox
- Operating instructions
- 2 x protective covers for camera connectors



The MultiViewBox is supplied without installation / connection accessories.

5 Accessories

Depending on the location and type of installation, you can use the following accessories:

Article number	Description
CR1201	Process and dialogue module
E2M203	M16 connection cable, 5 m
E2M251	M16 connection cable
E2M252	M16 wirable socket
O2M20x	Analogue camera with M16 connector

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The following accessories are needed for the operation of the MultiViewBox:

Article number	Description
E2M251	Connection cable M16



You can find more information about the accessories at:

www.ifm.com

→ Search → e.g. E2M250 → Accessories

6 Installation

CAUTION

The MultiViewBox is very heavy.

Risk of injury if the MultiViewBox falls to the floor.

Wear safety shoes during installation.

Installing the MultiViewBox:

1. Select a suitable installation location.
 - > Do not install the MultiViewBox with connectors facing upwards.
 - > Avoid installation in heavily polluting areas of the machine (e.g. splashing water, tyre abrasion, etc.).
2. Bore holes for M5 screws.
 - > The hole dimensions are indicated in the data sheet and in the scale drawing (→ 10).
3. Install the MultiViewBox with 4 x M5 screws.
 - > Choose M5 screws suitable for a solid base.
4. Connect the cables to the MultiViewBox



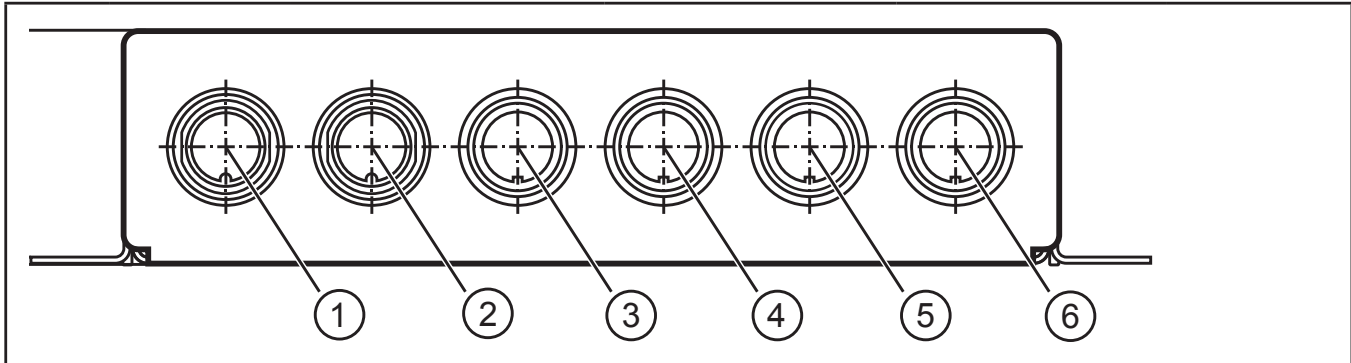
- Only use ifm cables.
- The cables must be provided with a strain relief.
- Observe the minimum bending radius of the cables.
- Cover unused connections with protective covers.

7 Electrical connection

7.1 Overview of the connections



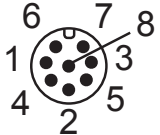
The connections C1...C4 and OUTPUT are not short-circuit protected.



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	Pin	Type	Description	Connection	Chapter
①		M16 connector, 8 poles	INPUT	Supply voltage / controller	(→ 7.2)
②		M16 connector, 4 poles	OUTPUT	Process and dialogue module	(→ 7.3)
③		M16 socket, 4 poles	C4	Camera	(→ 7.4)
④		M16 socket, 4 poles	C3	Camera	(→ 7.4)
⑤		M16 socket, 4 poles	C2	Camera	(→ 7.4)
⑥		M16 socket, 4 poles	C1	Camera	(→ 7.4)

7.2 Connection INPUT

Connection for supply voltage / controller			
M16 connector, 8 poles		Wiring E2M251	
	1	12 / 24 V DC	red
	2	GND	white
	3	IN 1	blue
	4	IN 2	brown
	5	IN 3	white/yellow
	6	IN 4	grey
	7	not used	not used
	8	not used	not used





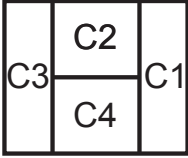
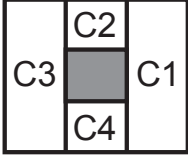
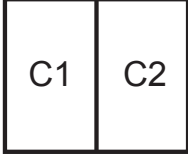
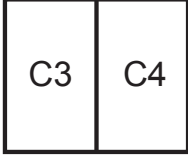
7.2.1 Control cameras

The visualisation of the camera image is controlled via the pins 3 - 6 of the connection INPUT.



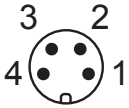
Accessory E2M251 is needed for the operation of the MultiViewBox (connection cable M16).

Visualisation of the cameras	Wire grey (pin 6)	Wire white/yellow (pin 5)	Wire brown (pin 4)	Wire blue (pin 3)				
<table border="1"> <tr> <td>C1</td> <td>C2</td> </tr> <tr> <td>C3</td> <td>C4</td> </tr> </table>	C1	C2	C3	C4	GND	GND	GND	GND
C1	C2							
C3	C4							

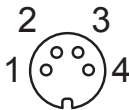
Visualisation of the cameras	Wire grey (pin 6)	Wire white/yellow (pin 5)	Wire brown (pin 4)	Wire blue (pin 3)
	GND	GND	GND	12 / 24 V DC
	GND	GND	12 / 24 V DC	GND
	GND	GND	12 / 24 V DC	12 / 24 V DC
	GND	12 / 24 V DC	GND	GND
	GND	12 / 24 V DC	GND	12 / 24 V DC
	GND	12 / 24 V DC	12 / 24 V DC	GND
	GND	12 / 24 V DC	12 / 24 V DC	12 / 24 V DC
	12 / 24 V DC	GND	GND	GND

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7.3 Connection OUTPUT

Connection for process and dialogue module		
M16 connector, 4 poles		
	1	Coax cable core (video signal)
	2	Coax screen (video GND)
	3	not used
	4	not used

7.4 Connection C1 - C4

Connection for cameras		
M16 socket, 4 poles		
	1	Coax cable core (video signal)
	2	Coax screen (video GND)
	3	U+
	4	0 V



Use the following ifm cameras only:

- O2M20x

7.5 Connection and laying of cables

- ▶ Use screened cables from ifm:
www.ifm.com → Search → e.g. E2M250 → Accessories
- ▶ Use screened connector housings.
- ▶ Do not lay the cable parallel to live cables.
- ▶ Lay supply and signal cables away from the cameras using the shortest possible route.

7.6 Supply voltage

The supply voltage of the MultiViewBox must be in the following range:
10 - 32 V DC

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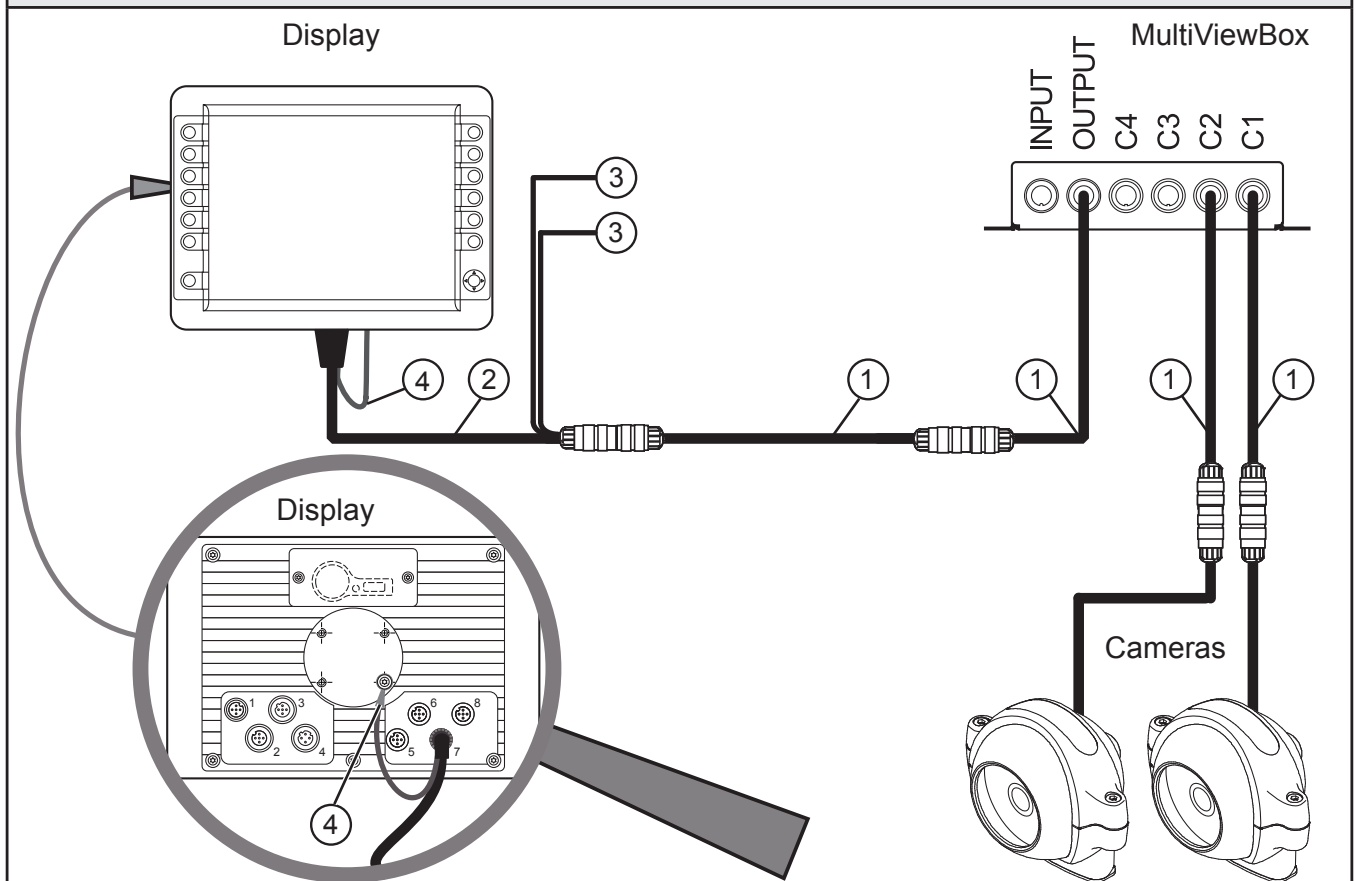
7.7 Current consumption

Application	12 V DC	24 V DC
No camera connected	< 230 mA	< 115 mA
2 x O2M2xx camera connected (heating off)	< 440 mA	< 270 mA
2 x O2M2xx camera connected (heating on)	< 500 mA	< 310 mA
4 x O2M2xx camera connected (heating off)	< 660 mA	< 430 mA
4 x O2M2xx camera connected (heating on)	< 770 mA	< 490 mA

7.8 Connect process / dialogue module and cameras

- Use adapter cables and, if necessary, connection cables.

Connection principle: Connect process / dialogue module CR1201 and two cameras O2M20x to the MultiViewBox



1. M16 connection cable (E2M203)

2. Adapter cable M12 connector ↔ M16 coupling (E2M200)

3. not used *)

4. Screen connection *)

*) Core colours of ifm adapter cables: 3 = RD (red); 4 = BK (black); GND = GY (grey)

Find more information about adapter or connection cables at:
www.ifm.com → Search → e.g. O2M200 → Accessories



The image quality is higher if a common GND is used.

- Connect GND connections of the process and dialogue module and the MultiViewBox.



Cover unused connections with protective covers.



Information on the integration of the camera in a CODESYS application: www.ifm.com → Search → e.g. O2M200 → Documents & downloads → Short instructions „Connection of analogue cameras to the PDM360 NG process and dialogue module in CODESYS“

7.9 Interference due to external influences

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Faulty or insufficient radio interference suppressors in electrical equipment, such as inverters or generators, as well as voltage fluctuations when switching on/off electric loads may lead to problems with the image transmission.

8 Maintenance, repair and disposal

- ▶ Do not open the housing as the device does not contain any components which can be maintained by the user.
- ▶ Dispose of the device in accordance with the national environmental regulations.

9 Approvals/standards

The EU declaration of conformity and approvals can be found at:
www.ifm.com → New search → E2M250 → Documents & downloads

10 Scale drawing

