Operating instructions

Image processing system

OVP800
M03975

Contents

1   Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at www.ifm.com.

1.1   Symbols used

✓   Requirement

▶   Instructions

▷   Reaction, result

[...]   Designation of keys, buttons or indications

→   Cross-reference

⚠   Important note
           Non-compliance may result in malfunction or interference.

ℹ   Information
           Supplementary note

1.2   Warnings used

	ATTENTION
	Warning of damage to property

	CAUTION
	Warning of personal injury
	▷ Slight reversible injuries may result.

1.3   Safety symbols on the unit

⚠   Electric supply must correspond to IEC 61010-1, chapter 9.4 - Limited-energy circuit.

◇   Device of protection class III. Only for operation in PELV circuits.

1.4   Legal and copyright information

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2 Safety instructions

- The unit described is a subcomponent for integration into a system.

    – The system architect is responsible for the safety of the system.

    – The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.

- Read this document before setting up the product and keep it during the entire service life.

- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.

- Only use the product for its intended purpose (→ Intended use).

- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.

- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.

- Installation, electrical connection, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.

- Protect units and cables against damage.

2.1 Cyber security

ATTENTION

Unprotected network environment:
The unit does not include IT security measures according to IEC 62443.

▷ Unauthorised read or write access to data is possible.

▷ Unauthorised manipulation of the device function is possible.

▶ Check and restrict access options to the device.

3   Intended use

The device is an image processing system that processes data from connected camera heads. After processing the data, the output values are calculated and sent to the higher-level system.

The device is required for the operation of the connected camera heads.

3.1   Application area

The device safety is rated for use under the following operating conditions according to EN IEC 61010-2-201:

• indoor use

• altitudes up to 2000 m

• relative air humidity up to max. 90 %, non condensing

• pollution degree 2

[!] Electromagnetic compatibility (EMC):
The unit is designed for use in industrial environments.
This product may cause radio interference in domestic areas.

   ▶ If required, take appropriate EMC screening measures.

[!] The IP rating has not been evaluated by UL® Underwriters Laboratories®.

4   Installation

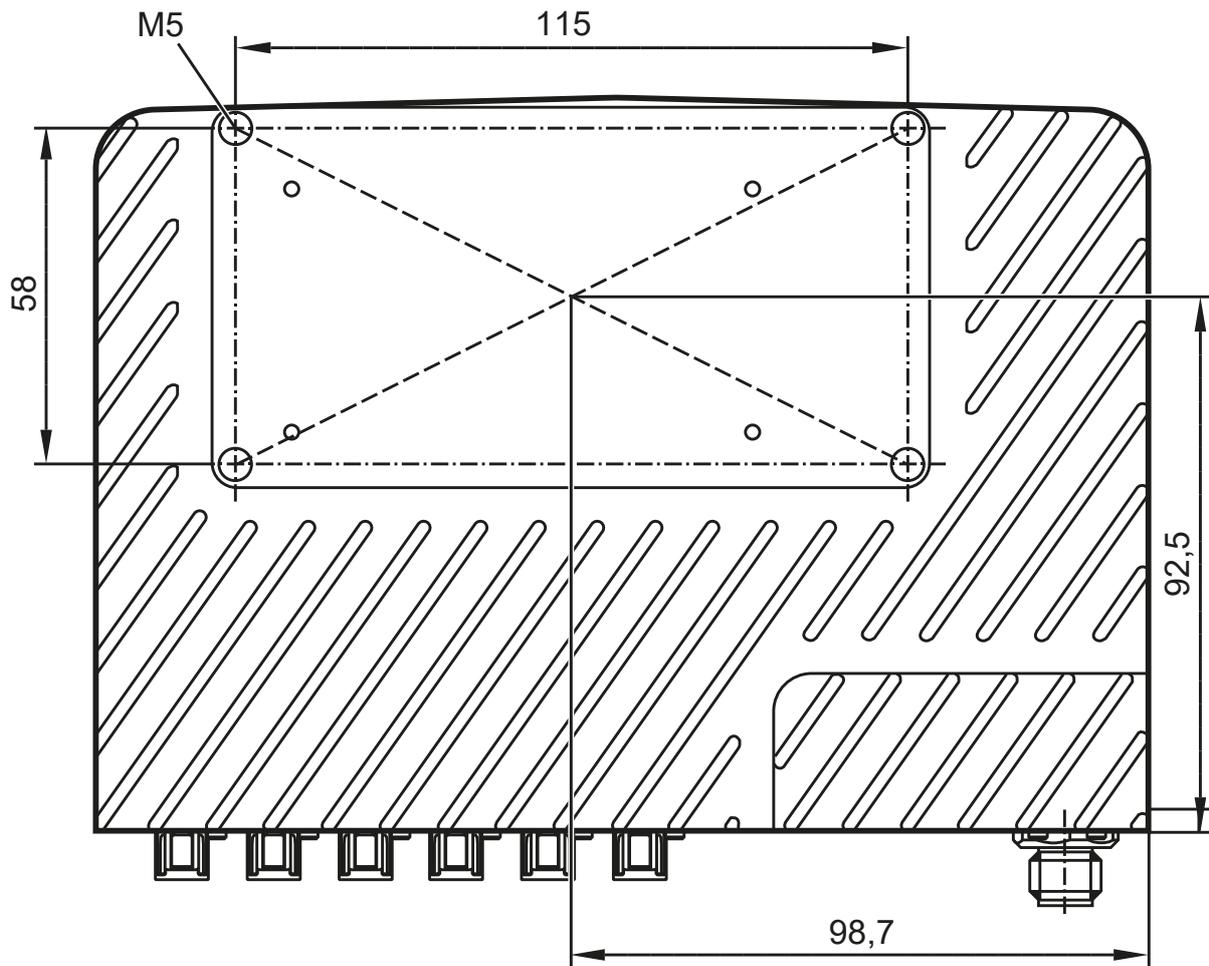
Fig. 1: Rear of the unit with the threaded M5 holes

Mounting the unit:

▶ Mount the unit on a mounting plate using the 4 threaded M5 holes.

    ▷ Observe the maximum tightening torque of 5.5 Nm for the threaded holes.

    ▷ The unit must rest on the mounting plate. Thermal contact is necessary for heat distribution.

▶ Connect the housing of the unit and the connected sensors to the same earth.

    ▷ If no connection to the same earth is possible: Mount the unit and the sensors isolated from the earth.

▶ Avoid installation in heavily polluted environments.

5   Electrical connection

ATTENTION

The unit must be connected by a qualified electrician.

Protection class III (PC III) unit (IEC 61010-2-201 chap. 6.5.2.101.4).

The electrical supply must

- be provided only by PELV circuits (IEC 61010-2-201 chap. 3.111),

- not exceed 35 V DC during operation,

- not exceed 60 V DC in the event of a single fault and

- not exceed the permitted operating voltage of the unit (see data sheet).

Use energy-limited circuits for the electrical supply (IEC 61010-1 chap. 9.4). The energy of the circuit can be limited at an operating voltage of 24 V by an overcurrent protection device. The overcurrent protection device must switch off a current of 8.3 A in maximum 120 s. Observe the specific tripping characteristic. Possible overcurrent protection devices:

- fuse or

- non-adjustable and non-self-reclosing electromechanical device.

Separate the circuit from other, non-energy-limited circuits by at least basic insulation. The separation of external circuits must comply with IEC 61010-2-201, Figure 102.

▶ Disconnect power before connecting the unit.

▶ For cable lengths > 30 m use an additional protection against surge voltages to IEC 61000-4-5.

▶ Use a maximum cable length of 20 m for the coaxial lines to the sensor ports.

   ▷ Longer coaxial cables will dampen the signal too much.

ATTENTION

Units damaged due to overload

▷ A camera head has 2 connections. If both connections are connected to different image processing systems at the same time, an overload will occur. This will damage the units.

▶ Connect a camera head to only one vision system.

For the scope of validity cULus:

Minimum temperature rating of the cable to be connected to the field wiring terminals: 70 °C.

Observe when connecting the unit:

▶ Use strain reliefs for cables connected to the unit.

▶ Cover the unused sockets with protective caps (E73004). Tightening torque 0.6...0.8 Nm.
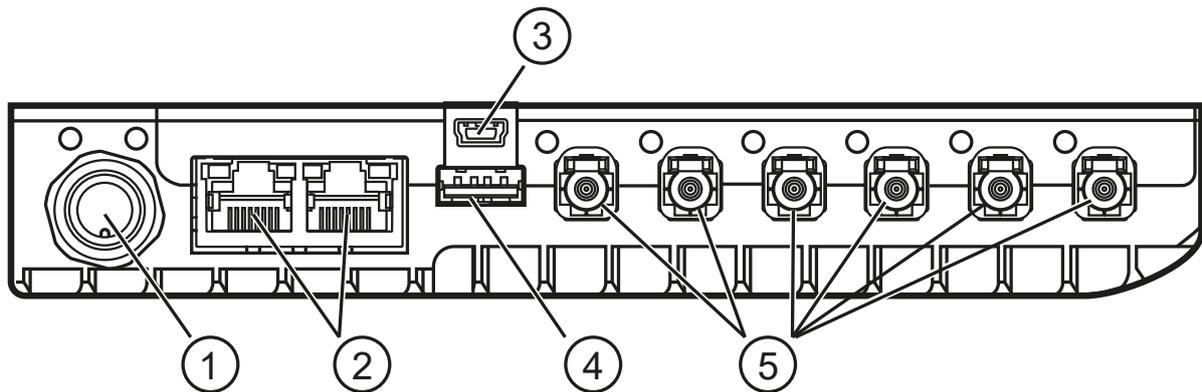
5.1   Wiring

Fig. 2: Wiring

1 Power supply / CAN   2 2x Ethernet RJ45
3 Mini USB interface 2.0   4 USB interface
5 Sensor port 0 to port 5 (from left to right)

Power supply / CAN, M12 connector, A-coded, 5 poles	
	1: screen 2: 24 V 3: GND 4: CAN: 5: CAN:

USB 2.0, mini USB interface	
	1: VBUS 2: D − 3: D + 4: ID 5: GND

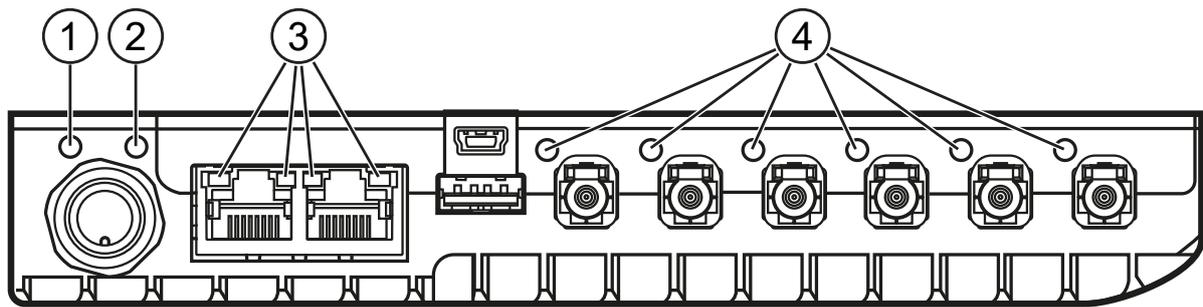| USB 3.0, USB interface type A	
	1: VBUS 2: D − 3: D + 4: GND 5: SSRX- 6: SSRX+ 7: GND_DRAIN 8: SSTX- 9: SSTX+

6   Operating and display elements

Fig. 3: Light indicators

1 Power LED	2 Status LED
3 Ethernet LED	4 Sensor status LEDs

6.1   Signal indications

Power LED

Power LED (green)	Description
on	Device switched on
off	Device switched off.

Status LED

Status LED (green)	Status LED (red)	Description
on	off	Normal operation / software is being updated
off	on	General error
off	Flashes	Operation with sensor reports error

Ethernet LED

Ethernet LED orange / green	Description
Flashes	Data is being transferred

Sensor LED

Sensor status LED green	Description
on	Sensor ready for operation
off	Sensor not ready for operation

7   Parameter setting

The camera parameters can be set in two ways:

- ifmVisionAssistant software, available for download: www.ifm.com
- Code examples, available for download in the developer portal: www.ifm3d.com

8   Operation

Before set-up, the device must be configured:

▶ Configure the device using the ifmVisionAssistant software.

▷ The software is available for download: www.ifm.com

30 seconds after switching on the power supply, the configured device will be in operation. The operating and display elements show the status of the unit and the connected sensors. (→ Operating and display elements ⌑ 10)

> To protect the hardware, the device is equipped with overtemperature protection. When overtemperature protection is active, data acquisition and data processing are paused.
>
> The overtemperature protection becomes active in case of
>
> ▶ high ambient temperature,
>
> ▶ high CPU load or
>
> ▶ insufficient thermal contact.
>
> ▷ The overtemperature protection will be deactivated as soon as the internal temperature of the device has decreased.

8.1   Update firmware

The firmware is updated with the ifmVisionAssistant software.

> ▶ Download the firmware and the software ifmVisionAssistant via the download area of the device: documentation.ifm.com

▶ Export the configuration of the unit before updating the firmware.

   ▷ Configurations saved in the unit get lost when the firmware is updated.

▶ Connect the unit to the ifmVisionAssistant software.

▶ Update the firmware of the unit.

▶ Import the configuration of the unit.

9 Maintenance, repair and disposal

Maintenance

If used correctly, the unit is maintenance-free.

| ! | Cleaning agents containing solvents and silicone may damage the unit.
▶ Only use cleaning agents without solvents and silicone.

Repair

Only the manufacturer is allowed to repair the unit.

Disposal

▶ After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

10   Approvals/standards

For approvals and standards, the following information is available:

- Test standards and regulations: documentation.ifm.com
- EU declaration of conformity and approvals: documentation.ifm.com
- Notes relevant for approval: package inserts of the device