THE ORANGE
YOURS

Fascination Automation

Sensors and systems

More effective production and competitive advantages.
With innovative automation solutions from ifm.

Sensors

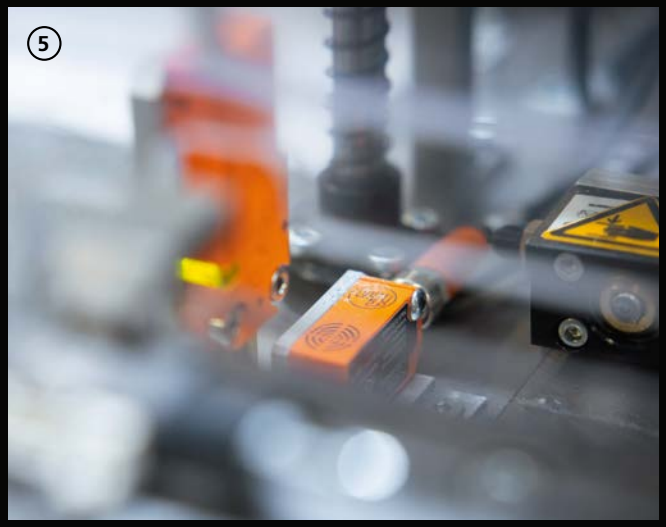
Indispensable in industrial use. Recognition of smallest objects with high precision over large distances.

Position sensors
- Inductive sensors
- Photoelectric sensors
- Capacitive sensors
- Magnetic sensors
- Ultrasonic sensors
- Valve sensors
- Cylinder sensors

Reliable monitoring of automated movements. Visualisation, processing and transfer of current process values.

Sensors for motion control
- Encoders
- Inclination sensors
- Speed sensors

Photoelectric sensors as "artificial eyes" are fundamental to automation technology.



1) Incremental encoder with IO-Link
2) Smart valve sensor with various diagnostic functions
3) Photoelectric sensor with very long range and precise background suppression
4) Ultrasonic sensors detect objects regardless of colour, transparency or degree of reflection
5) Not much space? Inductive sensor for use where space is limited

Sensors

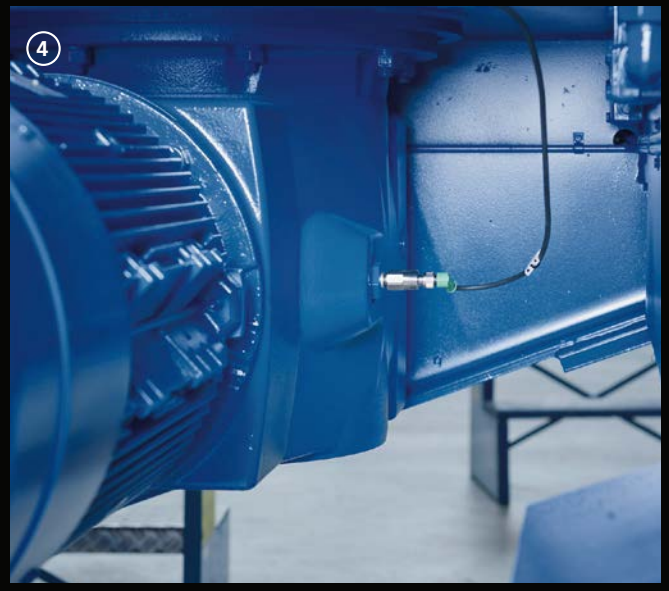
Liquids, air and gases under control. Reliable and accurate detection and measurement of flow, pressure, temperature and level.

Process sensors and fluid sensors
- Pressure sensors
- Vacuum sensors
- Level sensors
- Flow sensors
- Flow meters
- Temperature sensors
- Analytical sensors

Reliable monitoring of automated movements. Visualisation, processing and transfer of current process values.

Condition monitoring
- Vibration sensors

Process sensors from ifm reliably detect pressure, temperature and level in tanks and containers, e.g. in the food and beverage industry.



1) Cooling water monitoring on a machine tool
2) The infrared temperature sensor with pilot light demonstrates its strengths with particularly hot and hard-to-reach objects.
3) System pressure control in a plastics processing plant
4) Condition-based machine and plant maintenance using vibration sensors
5) Conductivity sensors differentiate, for example. between detergents, rinsing water and food.

Condition monitoring

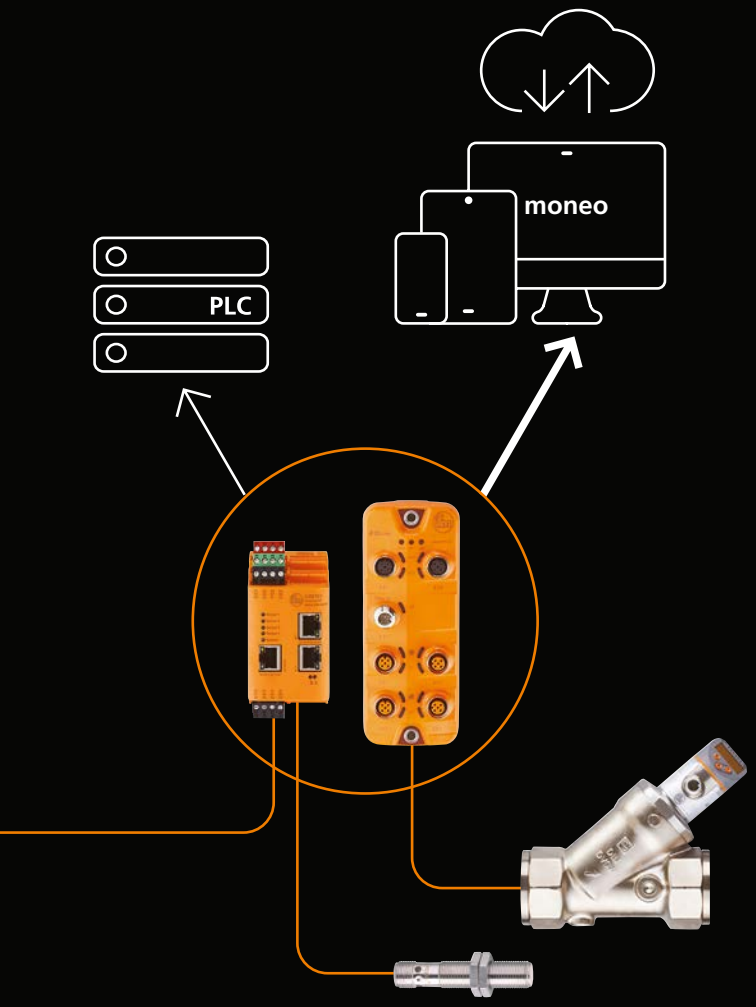
Detect machine damage at an early stage, avoid expensive downtimes and ensure high production quality.

Condition monitoring
- Systems for vibration monitoring and diagnostics
- Systems for oil quality monitoring

Consumption measurement
- Flow meters for compressed air
- Flow meters for water consumption

Evaluation units
- Pulse evaluation
- Signal evaluation
- Signal conversion
- Signalling and display

From sensor to SAP in a simple and cost-effective way: Machine data, process parameters and diagnostic data are read out directly and can be processed further in the IT system without having to go through the controller.



1) Flow sensors precisely record the current flow rate, total volume and media temperature of water and emulsions.
2) Vibration monitoring signals expensive bearing damage at an early stage and makes it possible to plan for replacement.
3) ifm compressed air meters reliably detect even minor leaks.
4) Vibration diagnostics in the control cabinet and directly in the field (5).

Image processing and identification

Intelligent sensors and systems for evaluation of objects and scenarios in assembly and quality control.

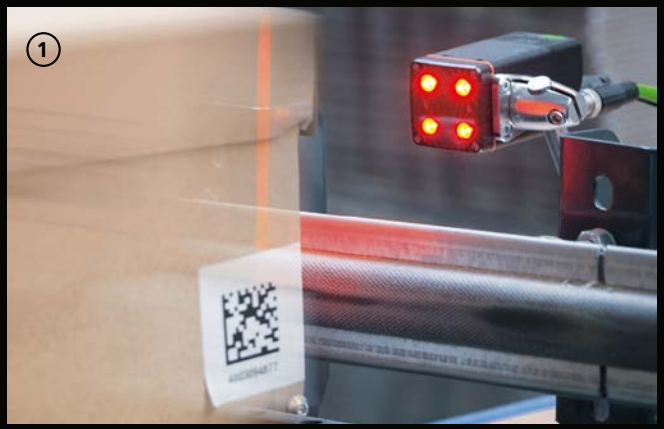
2D image processing
Vision sensors

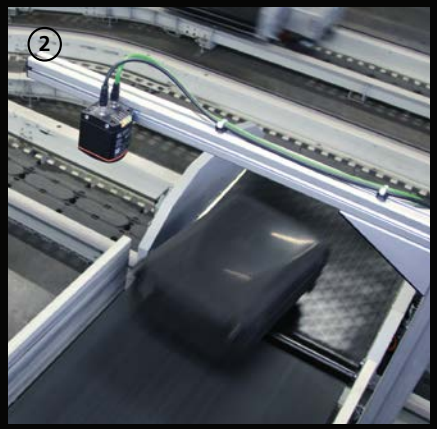
3D image processing
- Vision systems
- Vision sensors
- Cameras

Fully automated control and end-to-end documentation of manufacturing and supply processes.

Identification systems
- Optical identification
- RFID

Augmented reality with 3D in real time. The sensor system based on ifm's patented PMD technology is also suitable for the harsh environmental conditions in the field of mobile machines.





1) As simple as a sensor: Reliable and quick identification of 1D and 2D codes with the multicode reader.
2) Dimensioning and position detection of luggage at airports with a 3D sensor.
3) The O3M camera system warns of collisions on vehicles with poor visibility, such as forklift trucks, and monitors the rear area and blind spots, thus helping to prevent serious accidents.
4) The 2D vision sensor checks surfaces and contours in combination for maximum quality assurance.
5) UHF RFID - long ranges for production and logistics.

Safety technology

Machines must not pose any danger. Minimise the risk of personal injury and machine damage.

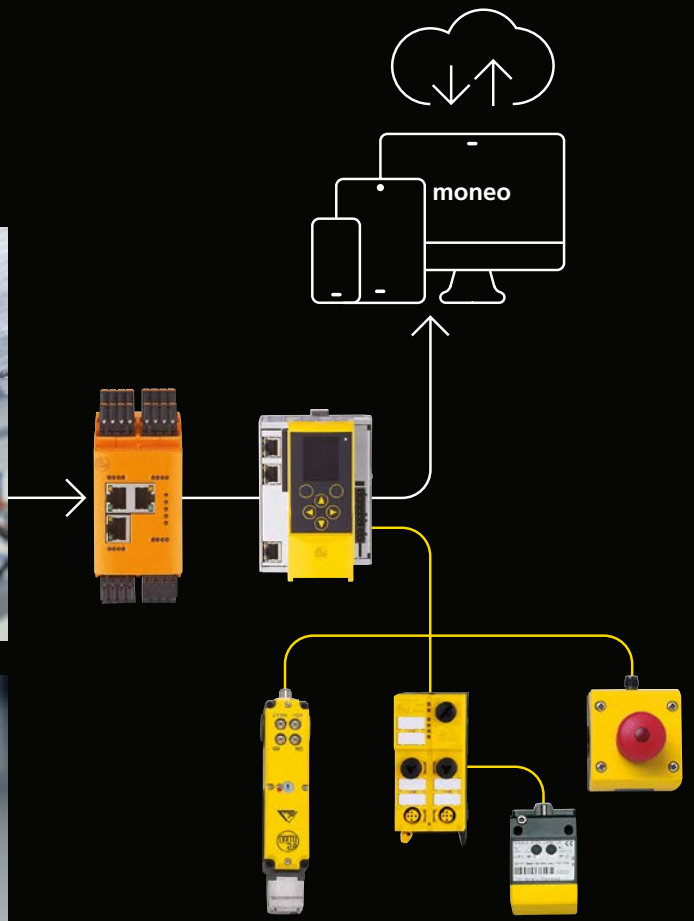
Sensors
- Fail-safe inductive sensors
- Safety light curtains
- Safety light grids
- RFID-coded and magnetically coded safety sensors

Industrial communication
- Safety controllers
- AS-Interface Safety at Work
- Safety over IO-Link

Voltage supply
- Safety relays

ifm safety light curtains allow material to pass unhindered through the protection field, but stop the dangerous movement as soon as people interrupt the protection field.

ifm safety service



1) AS-Interface Safety at Work
2) SmartPLC - fail-safe PLC and standard PLC in one
3) E-STOP pushbuttons can be easily and cost-effectively integrated into AS-Interface Safety at Work.
4) Inductive safety sensors from ifm detect metal without contact and do not require a special counterpart.
5) High-performance safety light curtains and light grids reliably safeguard danger zones.

Data infrastructure

Quick and easy data and energy transfer. AS-Interface reduces wiring complexity and saves considerable costs.

Controllers
- AS-Interface master
- Industrial SmartPLC
- Apps

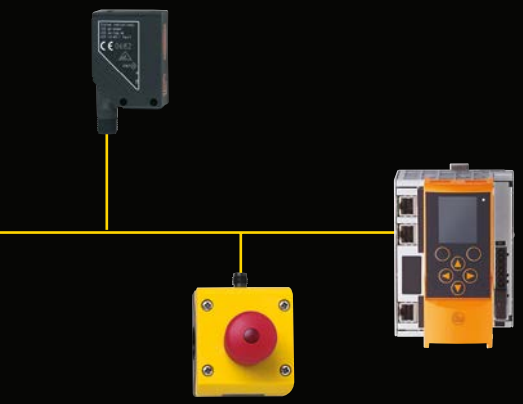
Modules I Masters
- Ethernet field modules
- AS-Interface I/O modules
- Fieldbus components

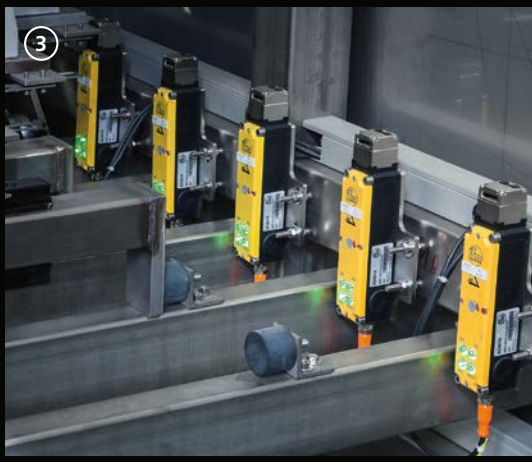
Systems I Sensors
- AS-Interface systems and sensors

Voltage supply
- AS-Interface power supplies and monitors

Applications
- AS-Interface Safety at Work
- AS-Interface for hazardous areas

Companies worldwide are relying on simple wiring and automation technologies to improve their overall plant efficiency and availability. Always present: AS-Interface.





1) Fully encapsulated decentralised I/O modules connect sensors and actuators to the gateway or PLC via AS-Interface.
2) Inductive dual sensors with AS-i connection: With only one AS-i master, up to 62 actuators and solenoids can be monitored and switched.
3) AS-i safety switch with guard locking in surface treatment
4) The AS-i AirBox effectively combines I/O module and solenoid valve for use in pneumatics.
5) AS-i PROFINET gateway and control cabinet modules for reliable and fast data exchange.
6) Ready for use in no time: RFID system with integrated AS-i interface

Data infrastructure

The first step towards Industry 4.0. Processing, evaluation and optimisation - that's IO-Link from ifm.

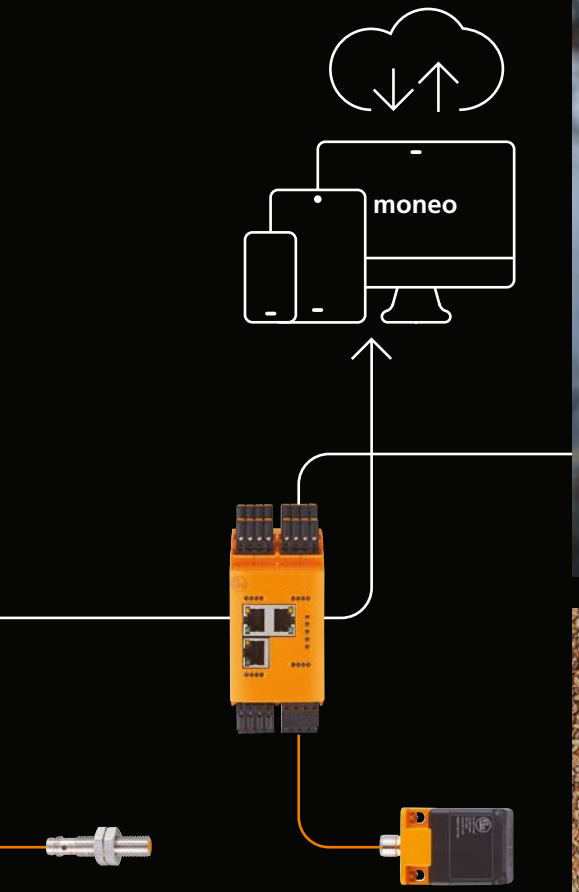
Masters | Modules
- IO-Link masters
- IO-Link modules

Sensors | Identification
- IO-Link position sensors
- IO-Link process sensors
- IO-Link sensors for motion control
- IO-Link identification systems

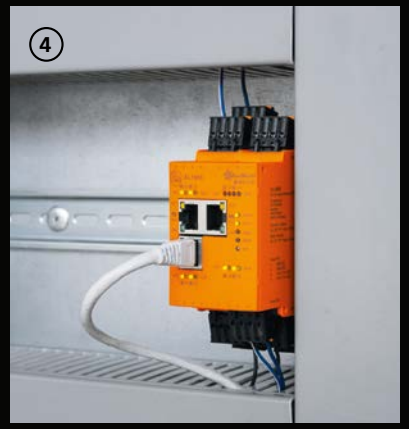
Display | Evaluation | Connection
- IO-Link devices
- IO-Link accessories
- Connection technology

Parameter setting | Starter kits
- IO-Link software
- IO-Link starter kits

Quick and easy set-up, additional information for machine monitoring, more transparency from the machine to the ERP: IO-Link offers convincing efficiency gains and cost savings.



1) IO-Link master for hygienic areas with a high degree of protection and integrated fieldbus interface.
2) The capacitive sensor can be configured via IO-Link before installation.
3) RFID antennas with IO-Link connection are ideally suited for identification tasks with low data volumes.
4) Connect up to 8 IO-Link devices: IO-Link master in the control cabinet.
5) IO-Link and the moneo software enable visualisation, transferability and archiving of the temperature sensor's parameter sets.



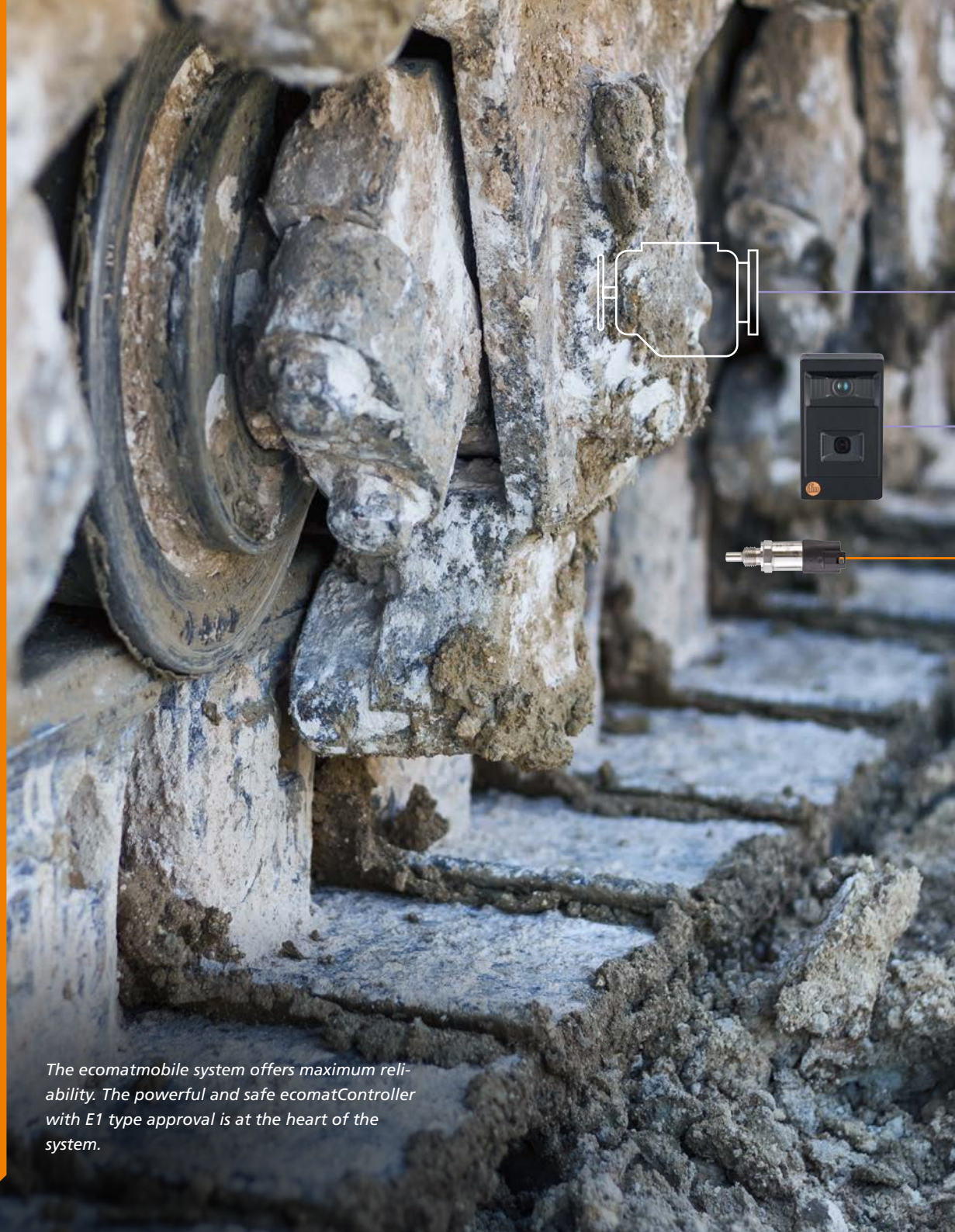
Systems for mobile machines

Whether mud, wet, cold or vibrations – maximum reliability under any conditions.

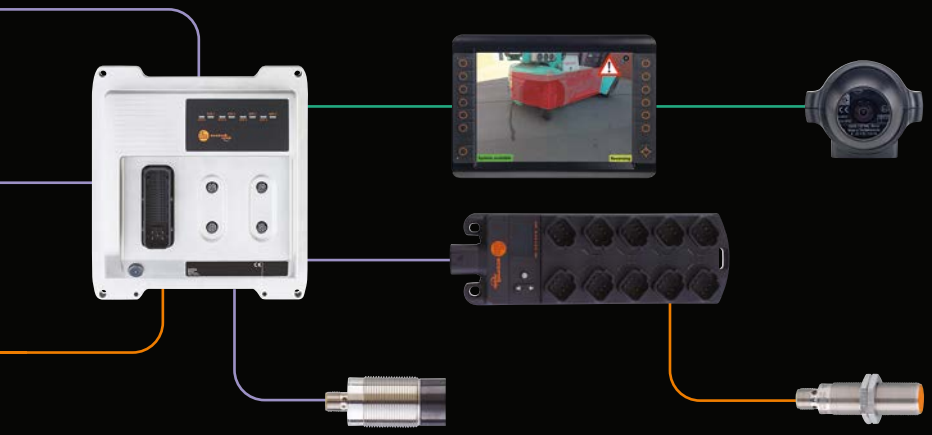
Control components
- Controllers
- I/O modules
- Gateways

Sensors I Image processing
- Cameras for mobile applications
- Sensors for mobile applications

Operation I Maintenance
- Units for operation and monitoring
- Components for diagnostic and service



The ecomatmobile system offers maximum reliability. The powerful and safe ecomatController with E1 type approval is at the heart of the system.



1) I/O module with powerful CAN interface
2) Mobile safety controller used on a fire engine
3) Programmable graphic display to control a sweeper

4) Simple area monitoring on a gantry crane with a 3D camera.
5) Tilt sensor for levelling an excavator.

Display | Handling | Illumination

Reliable process control, illumination and monitoring.
For more safety and maximum product quality at all times.

Display
- Display
- HMI
- Signalling

Operation
- Handling

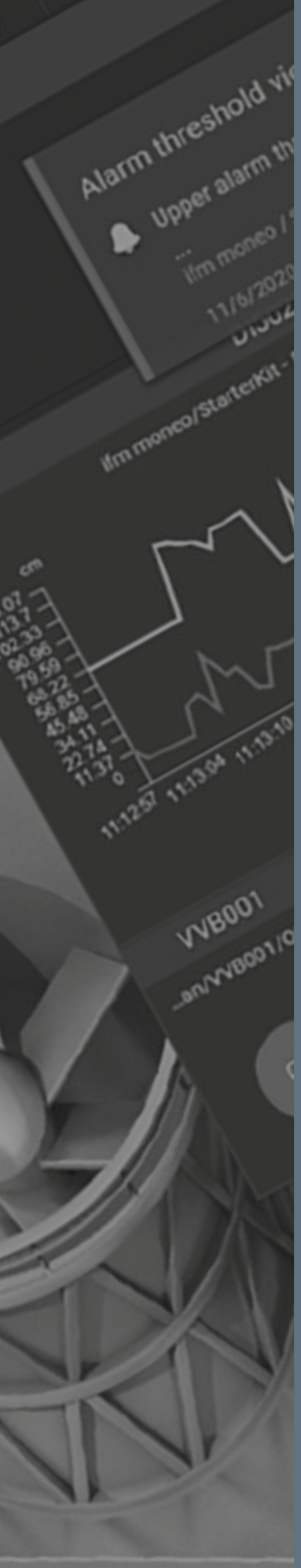
Illumination
- Lighting

In the industry, capacitive touch sensors are used as start/stop or acknowledgement button on machines.

1) 2D sensor with additional illumination for shadow-free object illumination in quality control.
2) Mini display for reliable limit value monitoring of sensors.
3) The signal lamps are easy to configure via IO-Link.
4) IO-Link displays indicate process values, texts and messages in IO-Link environments.

Software and IIoT solutions

Tailor-made complete solutions for process optimisation for our customers worldwide.
moneo – simply made for you.

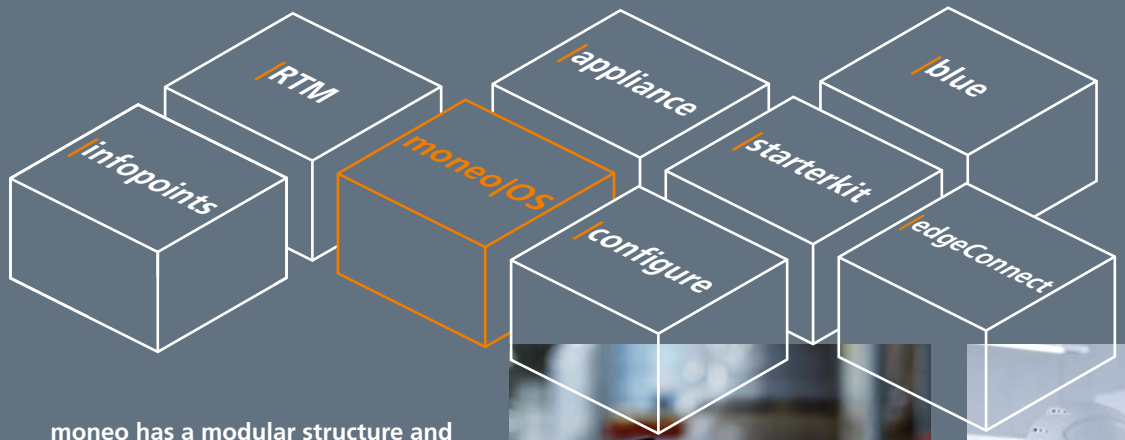


Software | IIoT solutions

moneo is the future-orientated digital tool from ifm for long-term successful industrial evolution.

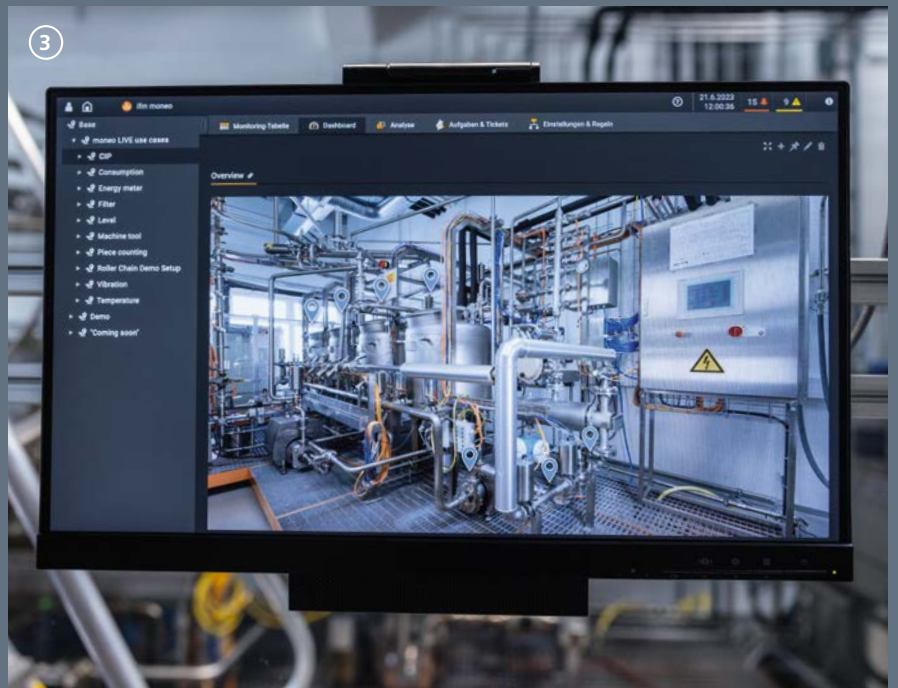
Software
- IIoT software kit
- Parameter setting software
- Programming software

As an IIoT platform, ifm moneo combines the level of operation technology with the level of information technology.



moneo has a modular structure and consists of a basic software as well as applications, e.g. for condition monitoring or for IO-Link sensor parameter setting. This makes it possible to put together a tailor-made software package for every individual requirement.

1) The app for mobile parameter setting and diagnostics of IO-Link devices in production – moneo blue.
2) The moneo OS IIoT platform is the centrepiece and management tool for all moneo apps.
3) moneo RTM, the plant condition monitoring app. Extensive data analyses allow for less downtime, more efficient maintenance planning and cost-optimised production processes.
4) With moneo configure, a large number of IO-Link sensors and masters can be set with just a few clicks.

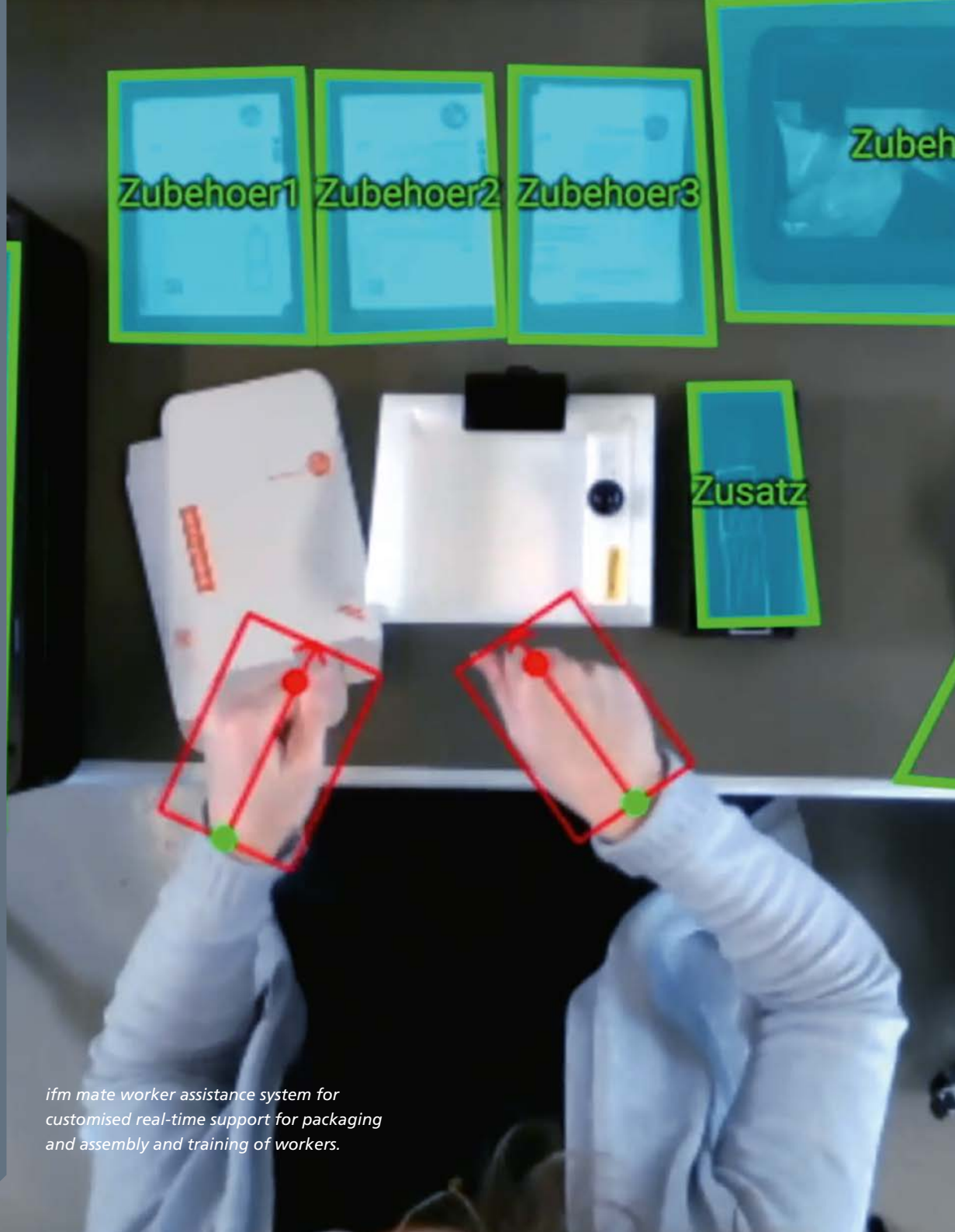


Software | IIoT solutions

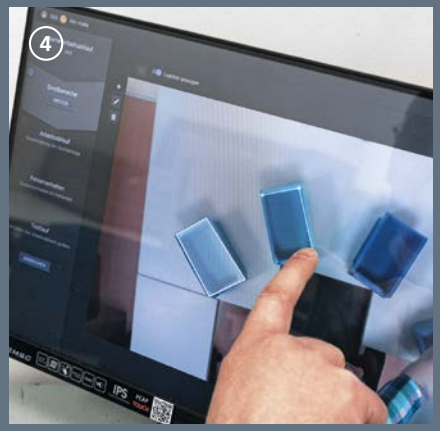
Whether AI-based support at the manual workstation or data transfer from the system to the cloud - with our powerful software and seamless hardware connection, your digitalisation projects will pick up speed.

Hardware
- IIoT hardware

Systems
- Worker assistance systems



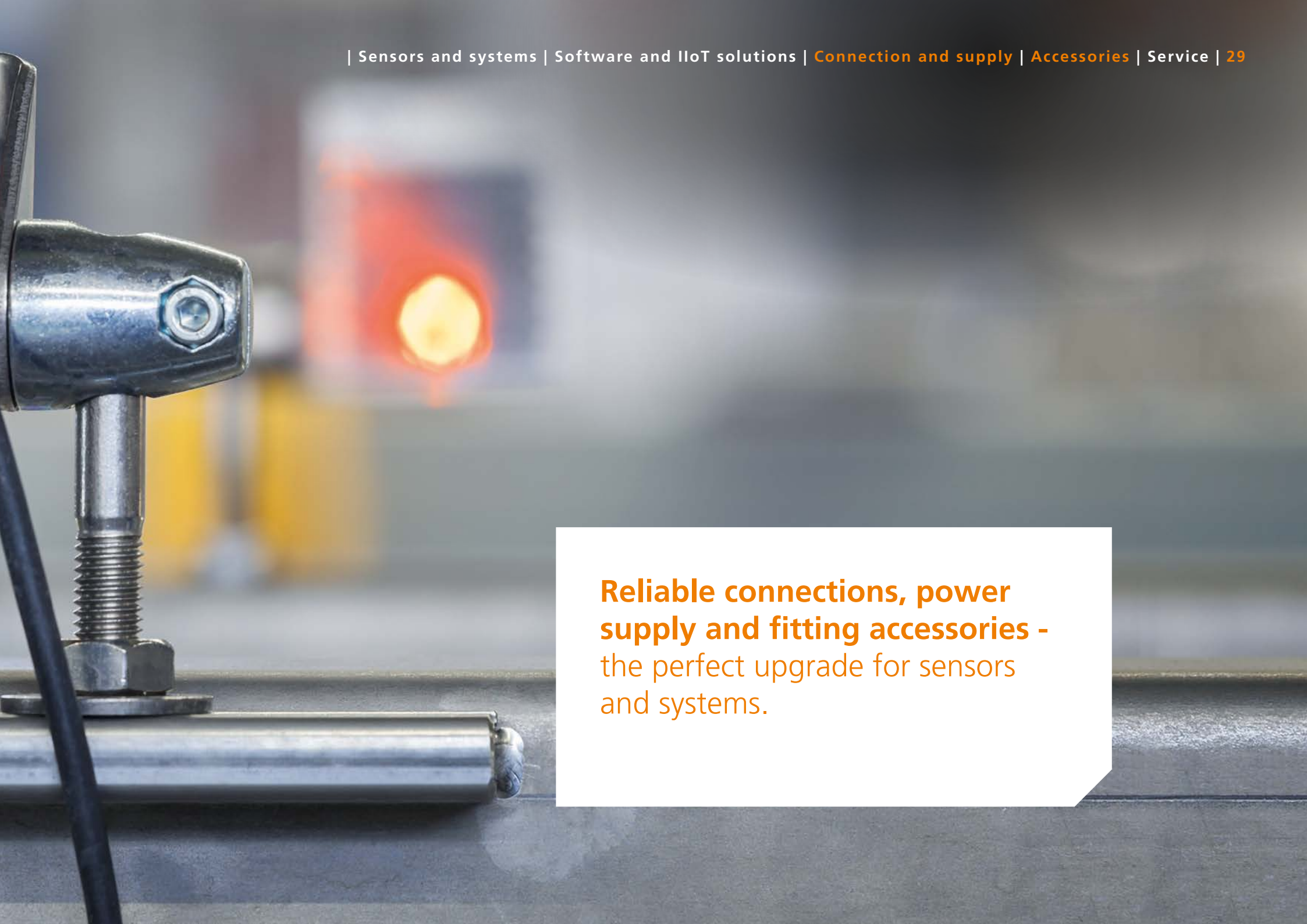
ifm mate worker assistance system for customised real-time support for packaging and assembly and training of workers.



1) ifm mate visualises manual gripping processes and work steps. Special accessories such as tracking wristbands or VR glasses are not required.
2) The IIoT controller combines convenient connection of the system infrastructure to the IT level with the universal nature of a freely programmable PLC.
3) ifm mate is characterised by simple and intuitive software and hardware set-up.
4) io-key, the cloud connection for all IO-Link sensors. Digital I/O modules enable direct sensor connection to the fieldbus - for a clear wiring structure.

Connection and supply

Accessories



Reliable connections, power supply and fitting accessories - the perfect upgrade for sensors and systems.

Connection technology

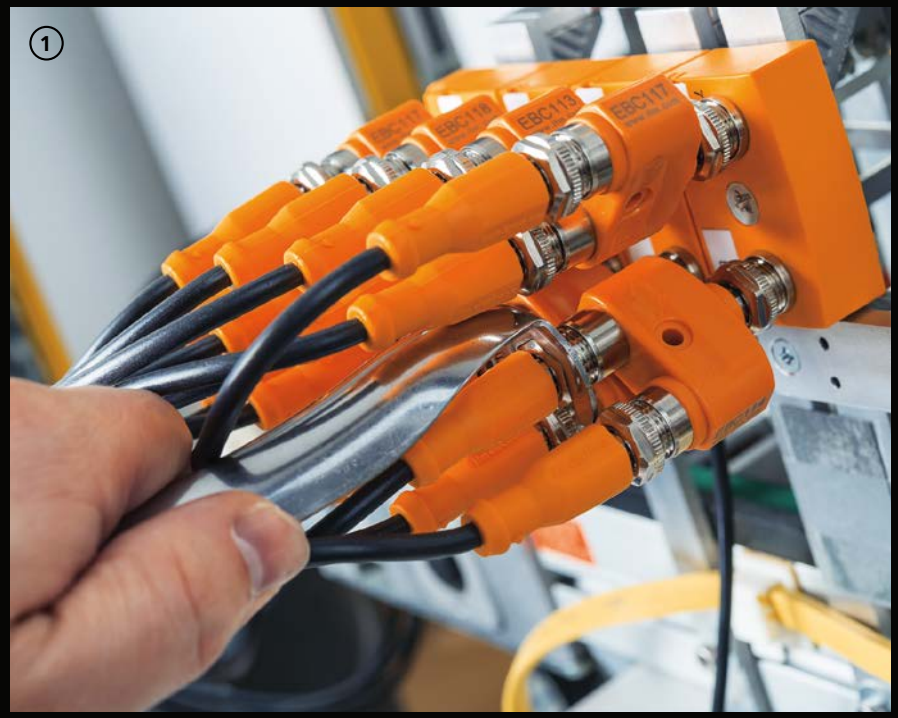
High-quality materials and an innovative sealing concept – ifm connectors offer highest quality standards.

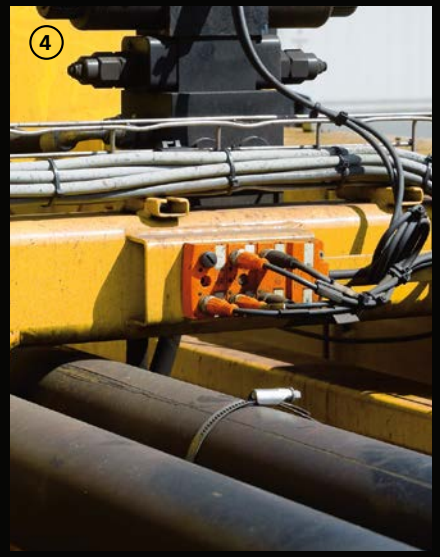
Pre-wired cables | By the metre
- Connection cables with open cable end
- Jumper cables
- Device connection cable for control systems
- Programming and communication cables
- Cables by the metre

Connectors
- Wirable
- Terminals
- Adapter connector

Splitter box
- Splitter boxes
- Y splitters

ecolink jumper cables from the EVT and EVF series are resistant to frequent high-pressure cleaning with aggressive cleaning agents and are therefore ideal for applications in hygienic and wet areas.





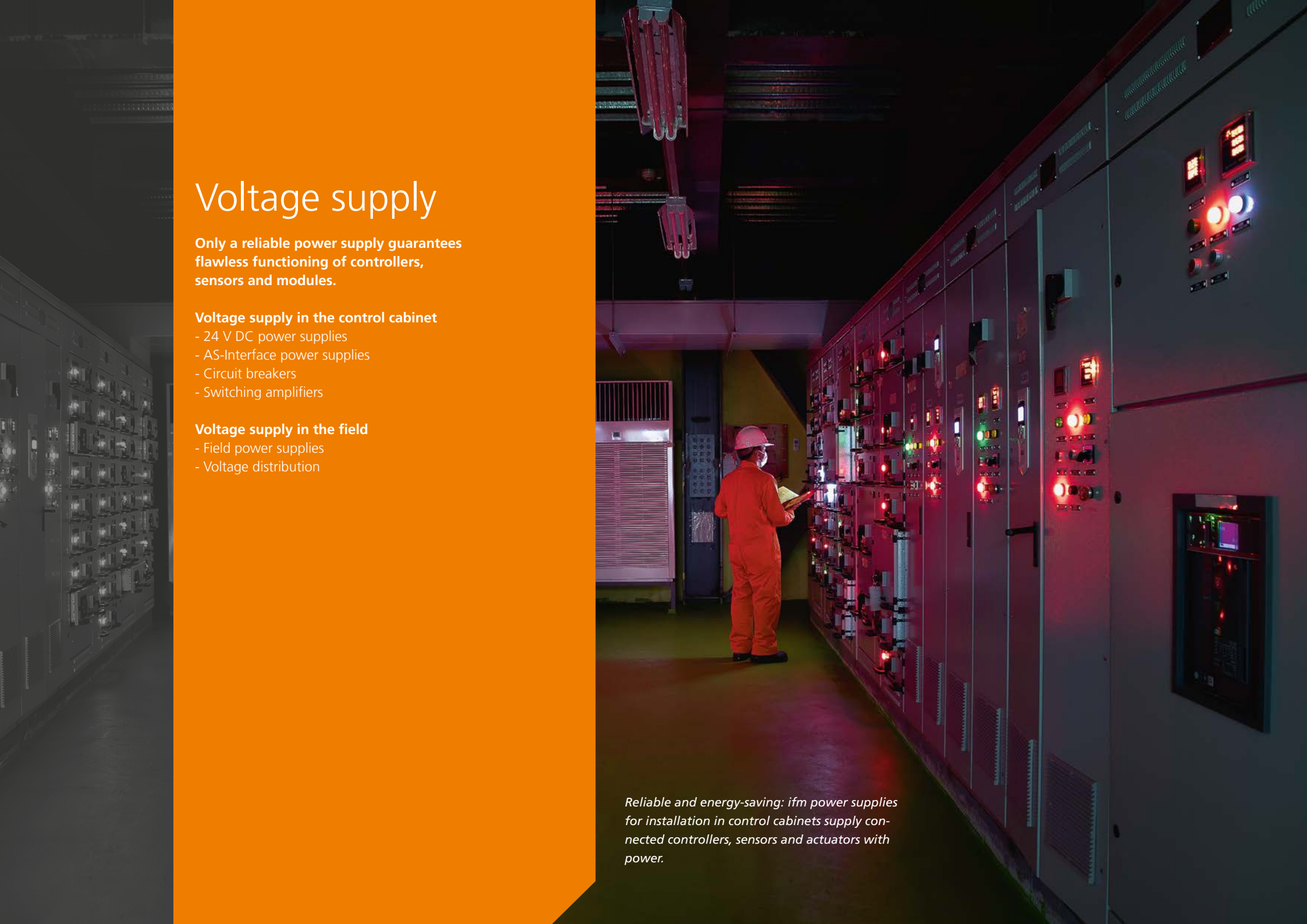
1) Y splitters from the EBC series are resistant to oils and lubricants and are therefore used in particular in the metalworking industry.
2) ecolink EVW series connectors are optimised for welding applications.
3) Highly visible LEDs even in bright lighting conditions.
4) Thanks to full potting, ifm splitters are shock and vibration resistant and are particularly suitable for use in the field, e.g. in harbours.
5) Even when fastened by hand, a perfect lasting seal of the splitter connections is guaranteed.

Voltage supply

Only a reliable power supply guarantees flawless functioning of controllers, sensors and modules.

Voltage supply in the control cabinet
- 24 V DC power supplies
- AS-Interface power supplies
- Circuit breakers
- Switching amplifiers

Voltage supply in the field
- Field power supplies
- Voltage distribution



Reliable and energy-saving: ifm power supplies for installation in control cabinets supply connected controllers, sensors and actuators with power.

1) The high efficiency of the 24 V DC power supplies saves energy costs and significantly reduces waste heat in the control cabinet. The electronic 24 V DC circuit breakers with IO-Link transmit all information directly to the IO-Link master – including, for example, which circuit breaker has tripped and how often.
2) AS-i power supplies have high interference immunity and sufficient power reserves, e.g. to compensate for short-term current peaks.
3) Thanks to their slim design, ifm's switching amplifiers take up very little space in the control cabinet.
4) Thanks to its IP67 protection rating, the relay plug is ideal for field use.

Accessories

Versatile accessories guarantee the reliable functioning of sensors and systems in all areas of application.

- Mounting accessories and fixing technology
- Adapters, process connection
- Reflectors, fibre optics and optics
- Illumination and signalling
- Device protection
- Actuators, targets, magnets and tags
- Accessories for AS-Interface
- Electrical adapters, signal converters and interfaces
- Antennas
- Tools
- Set-up
- Calibration certificates
- Material certificates and services

The mounting sets for position sensors allow any desired sensor position thanks to free movement in all directions.

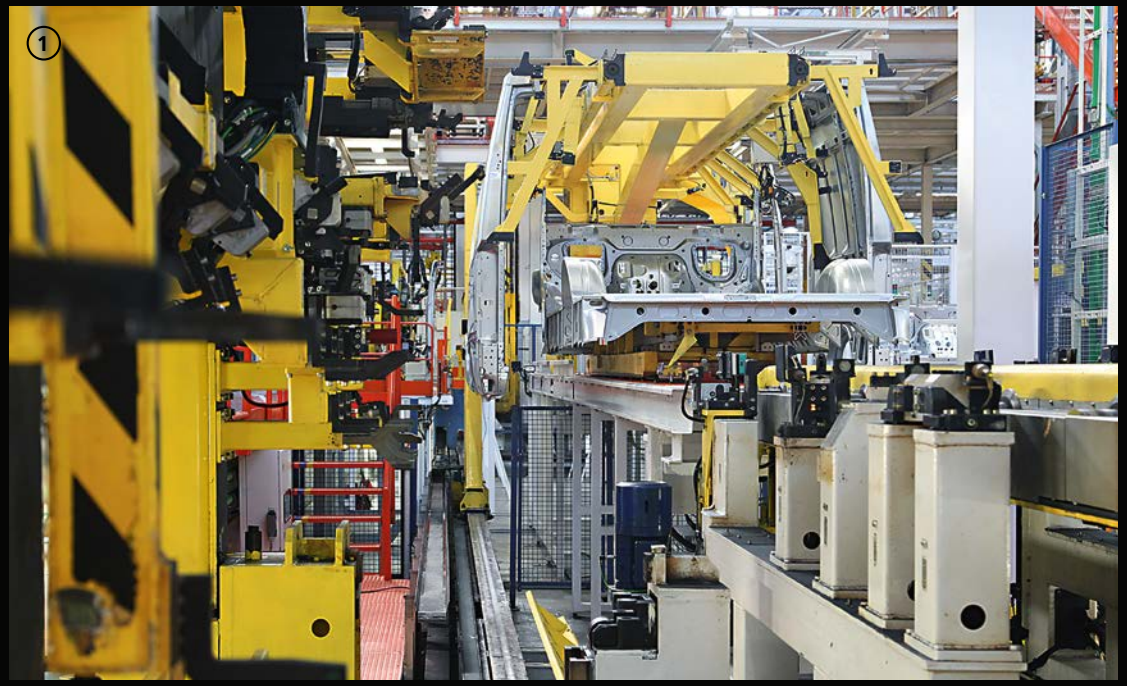
1) Install radar level sensors easily and cost-effectively – thanks to suitable accessories.
2) Mounting kit for end position feedback of manual valves and ball valves The switching cams are available in various diameters and heights for adaptation to the respective drive.
3) Process adapters and accessories for fast and reliable installation of process sensors for industrial and hygienic applications.
4) Mounting systems such as brackets allow reliable and fast sensor mounting.
5) Robust mounting kit to protect the sensors reliably against shocks and impacts
6) Accessories for AS-Interface The addressing device addresses participating AS-i devices quickly and easily. The flat cable insulation displacement connector is used to extend the AS-i network.

ifm safety service:

For us, safety is not an end product, but a process. Sophisticated, integrated plant safety has a positive effect on availability, and, therefore, also on productivity.

ifm safety inspection | ifm safety engineering

We support plant operators and manufacturers in all questions concerning plant and machine safety: From risk and hazard assessment to the inspection of safety systems.



1) When assessing the safety of machines and developing safety concepts, we work transparently and in constant dialogue with both original equipment manufacturers and machine operators.
2) ifm safety inspection: Both proper function and correct safety distance of protective devices must be checked at regular intervals. We offer you this test – manufacturer-independent and standardised in accordance with EN ISO 13855.
3) ifm safety engineering: Orientating plant inspection and risk assessment for operators. For OEMs, we offer research into directives and standards as well as a risk assessment.

ifm safety inspection

ifm safety engineering

Operator

Original equipment manufacturer

ifm calibration service

Calibration of newly purchased sensors at the ifm laboratory immediately after ordering. And regular recalibration for constant quality assurance.

ISO calibrations | A2LA calibrations | DAkkS calibrations | recalibrations

- Pressure sensors
- Flow sensors
- Temperature sensors
- Analytical sensors

Calibration is the act of determining and documenting, in a traceable manner, the deviations between a measuring instrument called device under test (DUT) and a reference device called reference standard.

1) Over time, almost every sensor is subject to stress. Without regular recalibrations, these influences can neither be perceived, nor compensated for.
2) Calibration of temperature sensors: The comparative measurement is performed in stirred, temperature-controlled liquid baths.
2) The DAkkS calibration of pressure sensors is carried out in the ifm calibration laboratory using high-precision pressure balances.

That’s it? Not at all!

Our entire product portfolio is available online!

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