THE ORANGE
BOOK

PRODUCT **FACTSHEETS**

2023

INSPIRATION FOR AUTOMATION

5 YEARS
Warranty
on **ifm products**

Our product news:
ifm.com/gb/product-news

Keeps both end positions in view

T-slot cylinder sensors with IO-Link

- Only 1 sensor for 2 end positions for short-stroke cylinders

- End position setting aid with second LED

- Inline quality monitoring with 50 mm detection range

- Monitoring critical pneumatic cylinders
  using the switching cycle counter

- Fast fault localisation thanks to extensive diagnostic functions

IP67

IO-Link

ifm – close to you!

Number of outputs physical / digital	Connection type	Connector type	Number of conductors	Order no.
2 / 2	2 m cable	–	4	**MK5904**
1 / 2	Pigtail	M8 fix	3	**MK5905**
1 / 2	Pigtail	M8 rotatable	3	**MK5906**
2 / 2	Pigtail	M8 rotatable	4	**MK5907**
2 / 2	Pigtail	M12 rotatable	4	**MK5908**
2 / 2	6 m cable	–	4	**MK5909**

Versatile cylinder monitoring

This IO-Link sensor with two configurable hardware outputs will upgrade your machine in no time. The outputs can be configured to your application requirements. A high-resolution process value with a detection range of 50 mm enables continuous monitoring as well as digital transmission via IO-Link. Thanks to the teach function and the Bluetooth adapter, the installed sensor can be easily adjusted from outside the machine.

Integrated diagnostic functions

Combined functions, such as the stroke counter (switching cycle counter), time monitoring between both end positions or device temperature provide servicing assistance and enable maintenance to be carried out as required.

One sensor instead of two: On short-stroke cylinders, one IO-Link cylinder sensor (upper groove) is now sufficient to detect both end positions instead of two conventional sensors (lower groove) as was previously the case.

Common technical data		
Operating principle		3D Hall
Electrical design		PNP / NPN (selectable)
Output function		NO / NC (selectable)
Output functions		Switch point / counter / diagnostic (selectable)
Switching frequency	[Hz]	200
Setting range	[mm]	typ. 50
Linearity	[%]	< 5
Resolution	[mm]	typ. 0.01
Repeatability	[mm]	< 0.2
Protection rating		IP67

BEST FRIENDS

moneo|configure SA
Software for parameter setting of the IO-Link infrastructure

moneo|blue
Manage IO-Link devices conveniently via smartphone app

IO-Link interface
For parameter setting of IO-Link devices on the PC

For further technical details, please visit: ifm.com/fs/MK5904

Faster, further, better

New generation of OGD distance sensors

- Distance measurement with millimetre precision using PMD time-of-flight technology

- Wide range of applications: 3 operating modes now facilitate object detection even in dynamic processes

- 2-in-1: simultaneous output of distance value and reflectivity

- Process values shown on 2-colour display and sent via IO-Link

ifm – close to you!

IP67   IO-Link   pmd

Material Housing	Output	Order no.
Plastic	2x PNP/NPN (selectable)	**OGD250**
Plastic	1x PNP/NPN, 1x analogue	**OGD251**
Stainless steel	2x PNP/NPN (selectable)	**OGD550**
Stainless steel	1x PNP/NPN, 1x analogue	**OGD551**

Common technical data		
Measuring range (distance)	[mm]	50…2000
Adjustable object reflectivity	[%]	6…900
Type of light / wave length	[Nm]	laser light 650
Laser protection class		1
Laser spot at max. measuring range	[mm]	5
Front pane material		PMMA
Measuring frequency	[Hz]	max. 180
Mutual interference suppression		yes
Protection rating		IP67

Even more performance

The new generation of tried-and-tested distance sensors from the OGD series combines all the advantages of their various predecessor variants in just one device. The user is now presented with a choice of operating modes for optimisation in terms of either high measuring distances, maximum precision or high measuring frequencies. This reduces the number of variants while enabling an optimum adaptation to a wide range of applications.

Versatile use

The sensors of the OGD series measure distance values with millimetre precision. They are ideal assistants for positioning objects or checking presence, for example in quality control. The reflectance values can also be used, for example for identification in sorting tasks. The areas of application are wide-ranging: whether handling technology, robotics, assembly automation, conveyor technology or logistics; the new OGDs are universal problem solvers for your automation!

Light- or heavy-duty?

The choice is yours. We now offer the OGD in both plastic and stainless steel housings.

User-friendly

The sensor can be set either directly on the device by using the three operating keys and the 4-digit display, or conveniently from a distance via IO-Link.

Speaking of the display: it can do more than just display the current measured value reading. A red-green colour change indicates the status of the current measurement in a clear and simple way.

In addition to the distance value, the reflectance value can also be output for evaluation via analogue output or IO-Link, or signalled via switching output.

BEST FRIENDS

IO-Link interface
For parameter setting of IO-Link devices on a PC

IO-Link masters
Masters with Profinet interface for use in the field

moneo|configure SA
Software for setting the parameters of the IO-Link infrastructure

For further technical details, please visit: ifm.com/fs/OGD250

Speed under control?

Speed monitor in compact housing

- 2 in 1: speed sensor and evaluation in one compact housing

- Many values can be read via IO-Link, switch and pulse outputs also available

- Robust metal housing, therefore no additional impact protection housing required

- Flush and non-flush versions

- Versions with ATEX approval

ifm – close to you!

IP67

IO-Link

Ex

Sensing range [mm]	Installation	ATEX	Order no.
12	for non-flush installation	no	**DI6004**
7	for flush installation	no	**DI6005**
8	for non-flush installation + ATEX	yes	**DI604A**
5	for flush installation + ATEX	yes	**DI605A**

The easiest way to keep an eye on speeds

Whether conveyors, belt drives, centrifuges or screw conveyors: The Compact speed monitor is the first choice wherever rotating or linear movements are to be monitored with regard to over-speed and underspeed.

Thanks to ATEX approval, use in hazardous areas, for example in grain processing, is also possible without risk.

Everything in a compact housing

Both the pulse-generating inductive sensor and the speed evaluation are integrated in a compact M18 housing - it doesn't get any more space-saving than this. Due to the robust metal housing, there is no need for an additional impact protection housing.

Common technical data		
Setting range	[Imp./min.]	3...24,000
Protection rating		IP67

Convenient thanks to IO-Link

The sensor provides a lot of information via IO-Link: speed values, minimum and maximum values and switch points can be read via IO-Link.

The parameter setting of, for example, the start-up delay, operating mode (Single Point Mode, Window Mode, Two Point Mode) or the "teaching" to the current speed is also conveniently carried out via IO-Link. With the help of the setting ring, the sensor can also be adjusted manually on site.
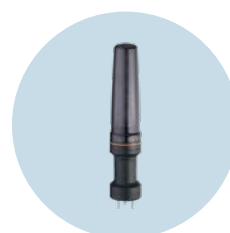
BEST FRIENDS

moneo|RTM
Analysis software for simple condition monitoring

IO-Link master
Field-compatible master with Profinet interface

Light tower
Clearly visible visualisation of operating states

For further technical details, please visit: ifm.com/fs/DI6004

Non-contact level measurement

Radar sensor for open and closed containers

- Level measurement with millimetre precision up to 10 metres

- Non-contact measuring principle, therefore no problems from deposits or wear

- Direct measurement or through non-metallic walls

- Remote sensor parameter setting and level monitoring via connection to the IT system

IP69K

IO-Link

ifm – close to you!

| Process connection	Outputs	Order no.
G1	2 switching outputs or 1 switching and 1 analogue output 4...20 mA	**LW2120**

Precise measurement on open and closed tanks and containers

The LW2120 radar level sensor measures levels of liquid media up to 10 metres precisely and without blind areas. The 80 GHz frequency used ensures stable and precise measurement results, even in the presence of steam or condensate in the tank for example.

With the antenna extension, available as an accessory, the sensor may also be used outside closed metal tanks, for example on open tubs.

The radar measuring system can also penetrate through non-metallic walls, allowing the level sensor to be easily mounted above plastic tanks such as IBC containers.

Common technical data		
Measuring range	[m]	0.01...10
Measuring accuracy	[mm]	± 2
Measuring principle		FMCW (80 GHz)
Protection rating		IP69K
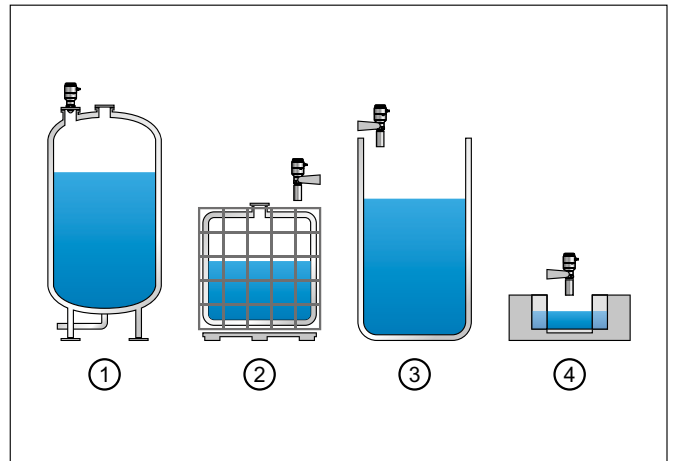
1) Storage tank
2) Plastic container
3) Outside use
4) Flow rate measurement
   A flow rate measurement in Venturi flumes
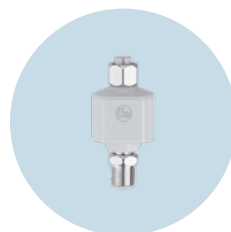   (e.g. Parshall, Khafagi-Venturi) can also be implemented
   with the radar sensor.

BEST FRIENDS

moneo|RTM
Analysis software for simple condition monitoring

moneo|blue
Manage IO-Link devices conveniently via smartphone app

Bluetooth mesh
Connection to the IT level without complex wiring

For further technical details, please visit:
ifm.com/fs/LW2120

Robust, flexible, hygienic

Pressure sensor with high-quality ceramic measuring cell

- Overload-resistant measuring cell with good long-term stability

- High variability thanks to different process connections

- Zero point calibration via teach button or IO-Link

- Factory certificate for download free of charge

IP69K

IO-Link

ifm – close to you!

Factory setting measuring range [bar]	Measuring range relative pressure [bar]	Process connection /order no.			
		G1 male / Aseptoflex Vario	G1 male / sealing cone	G½ male / sealing cone	TriClamp DN25...DN40 (1...1,5") DIN 32676 (ISO 2852)
0...100	-1...100	-	PM1602	-	-
0...40	-1...40	-	-	PM1543	PM1143
0...25	-1...25	PM1703	PM1603	PM1503	PM1103
0...16	-1...16	PM1714	PM1614	PM1514	PM1114
0...10	-1...10	PM1704	PM1604	PM1504	PM1104
0...6	-1...6	PM1715	PM1615	PM1515	PM1115
0...4	-1...4	PM1705	PM1605	PM1505	PM1105
0...2.5	-0.125...2.5	PM1706	PM1606	PM1506	PM1106
0...1.6	-0.1...1.6	PM1717	PM1617	-	PM1117
-1...1	-1...1	PM1709	PM1609	-	-
0...1	-0.05...1	PM1707	PM1607	PM1507	PM1107
0...0.4	-0.05...0.4	PM1718	PM1618	-	PM1118
0...0.25	-0.0125...0.25	PM1708	PM1608	-	PM1108
0...0.1	-0.005...0.1	PM1789	PM1689	-	-

Maintenance-free and robust

On the process side, the pressure sensors are maintenance-free because they have no elastomer seal. The flush and robust ceramic measuring cell is resistant to pressure and vacuum shocks and to impact by abrasive substances. In addition, the sensor withstands medium temperatures of up to 150 °C (max. 1h). It is therefore particularly suitable for all common food applications.

Flexible fitting

Thanks to the large choice of measuring ranges and process connections, you can install the sensors directly or via adapters both in pipes and in tanks. You can find suitable adapters for your requirements in our online shop.

Free factory certificate

At www.factory-certificate.ifm you can download a free factory certificate for each PM pressure sensor purchased.

Common technical data		
Step response time analogue output	[ms]	30 (2L) / 7 (3L)
Accuracy (in % of the span) deviation of the characteristics (to DIN EN 61298-2)		PM1x89 PM15xx PM1602 < ± 0.2 < ± 0,5
Medium temperature	[°C]	-25...125 (150 max. 1 h)
Materials (wetted parts)		Ceramic 99.9 %, PTFE, stainless steel (316L/1.4435)
Protection rating		IP69K

BEST FRIENDS

Teach buttons
For simple manual zero point calibration

moneo|configure SA
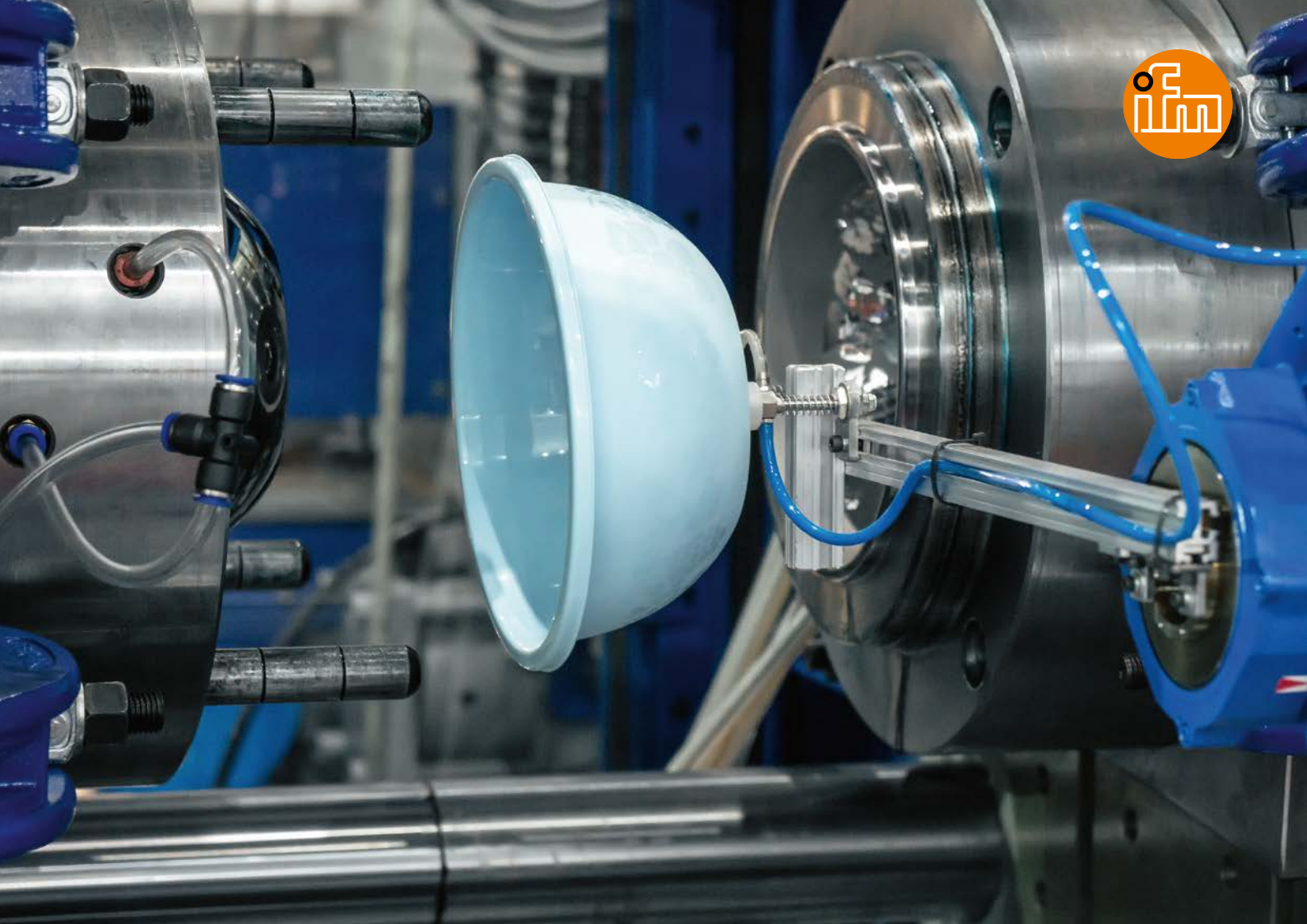Software for parameter setting of the IO-Link infrastructure

IO-Link interface
For parameter setting of IO-Link devices on the PC

For further technical details, please visit: ifm.com/fs/PM1602

More efficiency in every way

Fast-response, precise flow sensor

- Reliable process quality through continuous monitoring of the conformal temperature control

- Contributes to precise process control and reduced material waste

- Modern energy management combined with temperature sensors

- Capable of withstanding temperatures up to 180 °C and pressures up to 30 bar

IP67

ifm – close to you!

Measuring range [l/min]	Process connection	Order no.
0.3...25	Rp 3/4	**SBT633**
0.6...50	Rp 3/4	**SBT634**
2...100	Rp 1	**SBT646**
4...200	Rp 1 1/2	**SBT657**

Common technical data		
Medium temperature	[°C]	10…180
Accuracy	[%]	± 5
Response time	[s]	< 0.01
Protection rating		IP67

Efficient production ensuring the required level of quality

The SBT type flow sensors ensure quality and efficiency in your production processes, for example in injection moulding plants, tyre production or meat substitute production. The sensor quickly and precisely determines the flow rate of the medium used for the conformal temperature control in order to heat or cool the mould depending on the process step. In the process, it will not be affected by air bubbles.

Thanks to the high repeatability, deviations from the setpoint are detected at an early stage, even when the flow rates are very low. Costly material waste due to premature or incomplete cooling is avoided.

Early identification of maintenance requirements

Depending on the nature of the heating or cooling medium, the channels incorporated into the injection mould for conformal temperature control can become clogged over time. Deposits such as lime or dirt particles can reduce or even prevent the flow of the heating or cooling medium. The precise sensor technology helps to quickly identify the maintenance requirements in the clogged piping system and to prevent quality degradation.
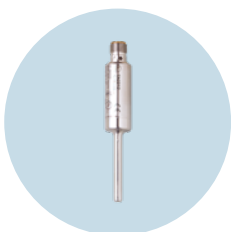
Modern energy management

Monitoring the flow and temperature has proven its worth in temperature control processes. In this way, the energy consumption of the production process can be easily monitored and optimised through precise control of temperature and flow.
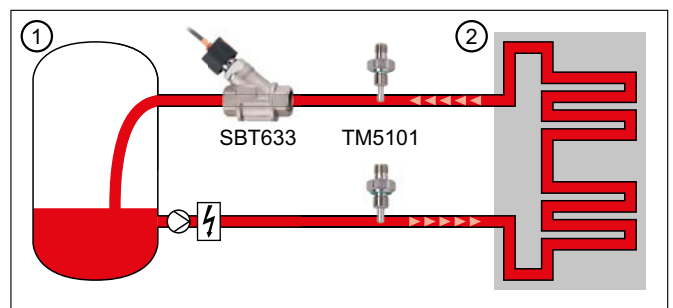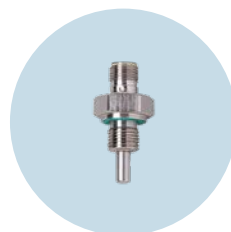

1) Temperature control unit
2) Tool

BEST FRIENDS

Temperature transmitters
Precise and fast detection of temperatures up to 200 °C

IO-Link converter
For connecting analogue sensors, with display

Temperature sensor
Precise and fast detection of temperatures up to 150 °C

For further technical details, please visit: ifm.com/fs/SBT633

Transparent monitoring of processes

Monitoring add-on for ifm Vision Assistant

- Clear visualisation of images and data from the vision sensors on a dashboard

- Deviations from the target state can be quickly detected and their cause identified

- Easy integration of new and existing sensors through network search

- Easy process analysis and trend detection thanks to automated image and data history

ifm – close to you!

Description	Order no.
Vision Assistant Monitoring Tool (including 6 connections)	**E3D310**
Vision Assistant Monitoring Tool (+1 connection)	**E3D311**

The Monitoring Tool can be activated in the ifm Vision Assistant from version 2.6.

Central overview of the process quality

With the Monitoring Tool as an add-on for the ifm Vision Assistant you can combine the image and process data of your vision sensors in the network on a dashboard. This provides you with a clear overview of relevant live images, statistics on good and bad parts as well as status messages from the sensors at all times.

Detect and eliminate deviations more quickly

This clear overview makes it easy for you to monitor process operations both directly in the production environment and at a central location in real time and to quickly identify possible deviations. Maintenance or corrective measures can be carried out with a short reaction time and a high process quality can be maintained.

Identify trends based on data history

Besides, you can also use the automatically generated data history to analyse process developments, derive trends from them and act ahead of time.
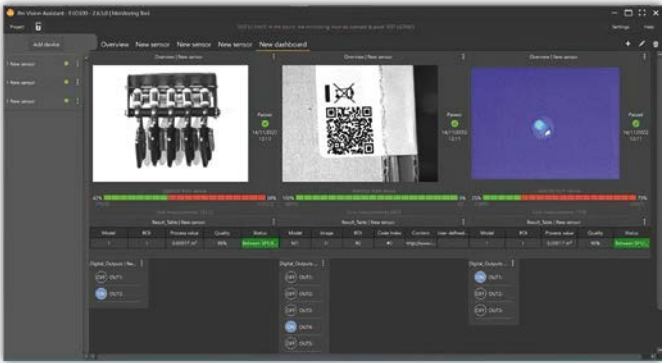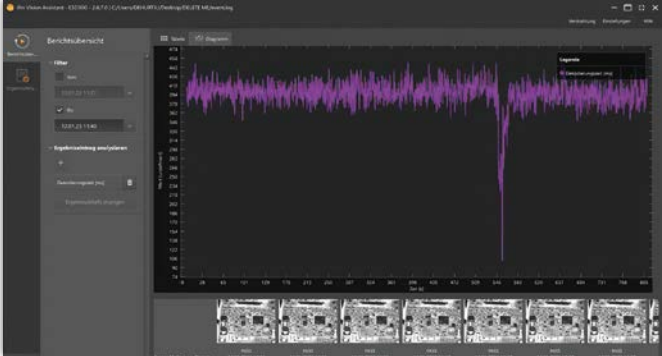
BEST FRIENDS

O3D 3D sensor
For object measurement, gripper navigation and much more

O2D 2D vision sensor
For the analysis of surfaces and contours

O2I 1D/2D code reader
Automatic analysis and checking of codes and text

For further technical details, please visit: ifm.com/fs/E3D310

Keeping track of the flow of goods

RFID UHF compact devices for harsh environments

- Antenna, evaluation unit and switch,
  all in one device, reduces installation time

- Reads up to 16 tags at a distance of up to 3 meters

- Installation in metallic or wet environments
  possible thanks to IP67

- Fieldbus interface, digital inputs / outputs or
  IO-Link for less wiring complexity

IP67

ifm – close to you!

Description	Order no.				
	PROFINET interface	**EtherNet/IP interface**	**TCP/IP interface**	**IoT core**	**IO-Link**
865…868 MHz EU/RED	**DTE801**	**DTE802**	**DTE804**	**DTE805**	**DTI801**
902...928 MHz USA, Canada, Mexico	**DTE901**	**DTE902**	**DTE904**	**DTE905**	**DTI901**
920.5...924.5 MHz China	**DTE911**	**DTE912**	**DTE914**	**DTE915**	**DTI911**
916.8...920.4 MHz Japan	**DTE961**	**DTE962**	**DTE964**	**DTE965**	**–**

Now also with IO-Link

Digitalisation and the resulting requirements for industrial identification solutions are increasing steadily. This is why ifm offers the compact high-performance RFID UHF devices not only with the classic fieldbus interfaces and IoT, but now with IO-Link.

Transferring data over the network, controlling actuators directly

RFID systems are an excellent solution when it comes to product tracking in intralogistics. With the IoT or IO-Link RFID UHF solutions, track and trace can be implemented in an even more streamlined fashion thanks to the simplified parameter setting and visualisation of ifm moneo configure.

Applications

With ranges of up to 3 m, the systems are ideally suited for track and trace and traceability applications. For example, vehicles can be identified and gates opened directly by means of digital outputs - without any programming effort or time delay. In intralogistics, the system is used for seamless product tracking. Up to 16 tags can be read simultaneously.

Example programmes for download

For each product we offer numerous example programmes and documentation for download free of charge.

DTE versions with fieldbus interface

The DTE evaluation systems have an integrated web server for device setup as well as monitoring and diagnostic data when integrated into the cloud. Thanks to their interfaces, the DTE versions are ideal for direct connection to PCs, industrial PCs or PLCs. Signals can also be looped through via an additional fieldbus interface, which reduces wiring complexity at field level.

In addition, the devices have two digital inputs and outputs. Integrated logic functions can be used for data pre-processing, for example, to directly control a signal lamp in accordance with the situation.

The devices with IoT core provide advanced data, events and services via common protocols such as HTTP, MQTT and JSON.

DTI versions with IO-Link

IO-Link allows particularly simple parameter setting and fast setup. For maximum flexibility, operating modes can be adjusted to the application at any time. Comprehensive antenna parameters and diagnostic data can be called up and visualised via the moneo software. This provides maximum transparency.

BEST FRIENDS

ID-Tags UHF
RFID tags with high write and read distances

IO-Link master
For use in factory automation

moneo|configure SA
Software for parameter setting of the IO-Link infrastructure

For further technical details, please visit:
ifm.com/fs/DTE801

Powerful all-rounder

IIoT controller for the control cabinet

• 2-in-1: cloud connector and powerful controller

• Perfect IO-Link integration

• Plug & Work access to the I/O level via Ethernet

• Can be mounted on the DIN rail in different orientations

• Powerful technology for demanding applications

IP 20

CODESYS

ifm – close to you!

Connection	Order no.
IIoT controller, CabinetLine	**AE3100**

Technical data		
Operating voltage	[V DC]	18...30 DC (PELV)
Ambient temperature	[°C]	-25...55
Housing material		Die-cast aluminium passivated, stainless steel
Dimensions	[mm]	120 x 125 x 36
Protection rating		IP 20

Powerful and versatile

The IIoT controller is a powerful, communicative and flexible PLC solution in machine and plant digitalisation. Powerful, because at ambient temperatures of up to 55°C, the 1.3 GHz quad-core processor works at high performance level. Communicative, because it is a true language and translation talent with its various protocols, regardless of whether it is a matter of connections to the IT world or the integration of automation technology I/O data. In addition, even a Plug & Work connection of IO-Link devices is possible – including IODD interpretation. Flexible, as the IIoT controller is freely programmable via CODESYS V3.5.
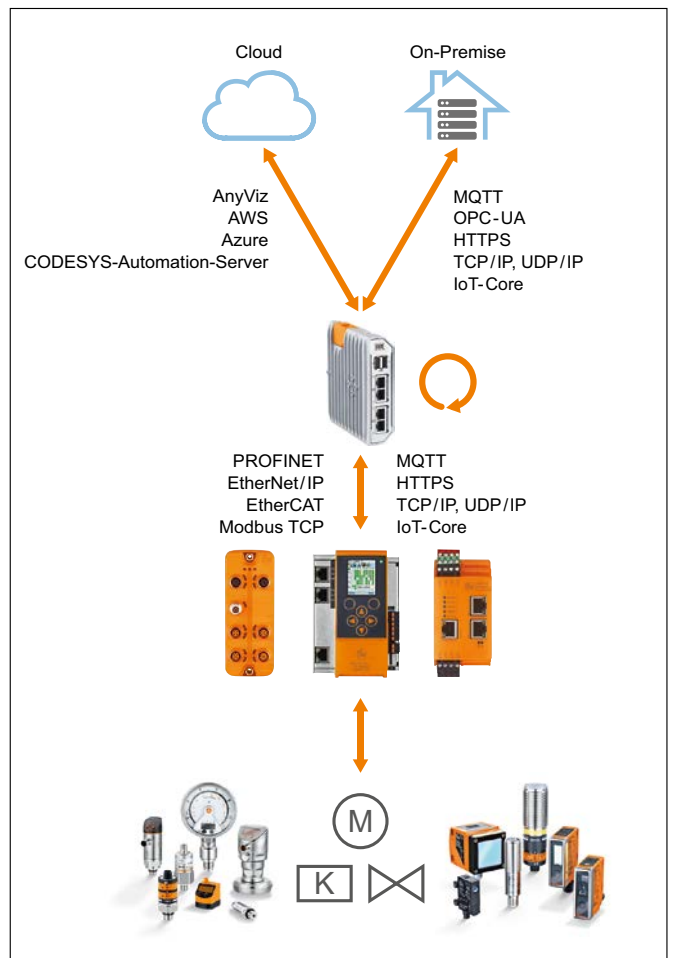
You would like to manage the device remotely? No problem, the CODESYS Automation Server enables remote debugging and remote web visualisation.

Connection to different clouds

The IIoT controller allows for transmission of the recorded and prepared data to the most common cloud platforms such as AWS, Microsoft Azure and AnyViz. Furthermore, the IIoT controller speaks the common standard digitisation languages such as OPC UA and MQTT.

Whenever data is to be recorded and processed in real-time, I/Os can be read and controlled by using Industrial Ethernet protocols such as Profinet, EtherCAT, EtherNet/IP or Modbus TCP.
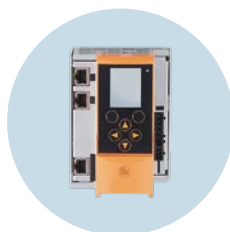
Cloud — On-Premise

AnyViz
AWS
Azure
CODESYS-Automation-Server

MQTT
OPC-UA
HTTPS
TCP/IP, UDP/IP
IoT-Core

PROFINET
EtherNet/IP
EtherCAT
Modbus TCP

MQTT
HTTPS
TCP/IP, UDP/IP
IoT-Core

BEST FRIENDS

IO-Link master
For use in factory automation

Smart PLC
For data exchange with the sensor actuator level

Diagnostic electronics
Vibration monitoring of machines and equipment

For further technical details, please visit:
ifm.com/fs/AE3100

Connected, yet safely separated

Field-compatible IO-Link master with IoT connection

- Separation of automation and IT network protects the installation from unauthorised access from outside

- Product versions enable simple connection to all common fieldbuses

- Easy parameter setting of master and devices using **moneo|configure**

IP67　IP69K　IO-Link

ifm – close to you!

Description	Order no.	
	Coolant (orange)	Food (grey)
IO-Link master DataLine · 4x A-port		
PROFINET + IoT	**AL1304**	**AL1305**
EtherNet/IP + IoT	**AL1324**	**AL1325**
EtherCAT + IoT	**AL1330**	**AL1331**
Modbus TCP + IoT	**AL1340**	**AL1341**
IoT only	**AL1350**	**AL1351**
Powerlink + IoT	**AL1370**	**AL1371**
IO-Link master DataLine · 8x A-port		
PROFINET + IoT	**AL1306**	**AL1307**
EtherNet/IP + IoT	**AL1326**	**AL1327**
EtherCAT + IoT	**AL1332**	**AL1333**
Modbus TCP + IoT	**AL1342**	**AL1343**
IoT only	**AL1352**	**AL1353**
Powerlink + IoT	**AL1372**	**AL1373**

Secure exchange between OT and IT level

Even in the modern world of Industry 4.0, securing your system infrastructure against external influences is a top priority. The IoT-enabled IO-Link master modules act as decentralised gateways in the automation network and forward the data from the connected sensors to the fieldbus. The connection to the IT level is made via a separate IoT Ethernet socket. The data is transmitted via the established TCP/IP JSON interface. This allows you to process relevant process data in the IT level and in ERP systems while maintaining the safety of your installation.

Convenient parameter setting using moneo|configure SA

The intuitive **moneo|configure SA** software automatically detects your entire IO-Link infrastructure and arranges it in the defined tree structure in a clear manner. Masters and sensors are displayed with their respective parameters and can be managed centrally in the software.

Robust field bus modules for demanding applications

Thanks to their special housing material and high ingress resistance, the modules can be used in coolant applications or directly in wet areas in the food industry. The ecolink technology guarantees reliable, permanently ingress-resistant M12 connections of the connection cables.

With the corresponding accessories, additional auxiliary power for the connection of IO-Link actuators can be supplied. The cable can be up to 20 metres long.

| Common technical data	
Voltage supply	M12 A-code, 3.9 A (US)
IIoT port	HTTP(S), JSON, MQTT
Output power [mA]	300
Coolant (orange) Protection rating Housing Socket / connector	IP67 polyamide nickel-plated brass
Food (grey) Protection rating Housing Socket / connector	IP69K polyamide stainless steel

BEST FRIENDS

moneo|configure SA
Software for parameter setting of the IO-Link infrastructure

Ethernet modules
Transmit digital sensor data from the field to the fieldbus
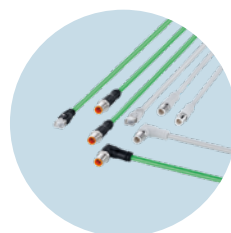
Ethernet cables
Available in various lengths and versions

For further technical details, please visit:
ifm.com/fs/AL1304

Upgrade to IIoT?
With ease wireless!

Bluetooth mesh system for easy retrofitting

- Sensors can be connected subsequently
  to the IT level without complex wiring

- Easy retrofitting and digitalisation of extensive systems

- New nodes can be incorporated via smartphone

- Password protection for your data security

IP67 **IP69K** **IO-Link**

ifm – close to you!

Description	Order no.
Bluetooth mesh IO-Link adapter	**EIO344**
Bluetooth mesh IoT base station	**EIO404**

Technical data	
Maximum number of nodes	50
Maximum distance between nodes [m]	20
Encryption standard	AES128
Protection class Base station Adapter	IP67 IP69K

Simple digitisation in the inventory

With the Bluetooth mesh system, you can easily evaluate sensor data from your existing system at the IT level. Use the information gained in this way to increase the efficiency of your system – with considerably reduced wiring complexity.

Up to 50 sensors in a mesh network

Starting from a base station, which is the interface for bidirectional communication with the IT level, up to 50 Bluetooth adapters communicate with each other in encrypted form. Even data packets from the most remote sensors are securely transmitted wirelessly to the base station via the resulting mesh network, which can span the entire system. The adapters can be screwed directly onto the sensor and are supplied with power via the existing cable. Depending on local conditions, the mesh nodes can be up to 20 metres apart, making the system suitable for large installations.
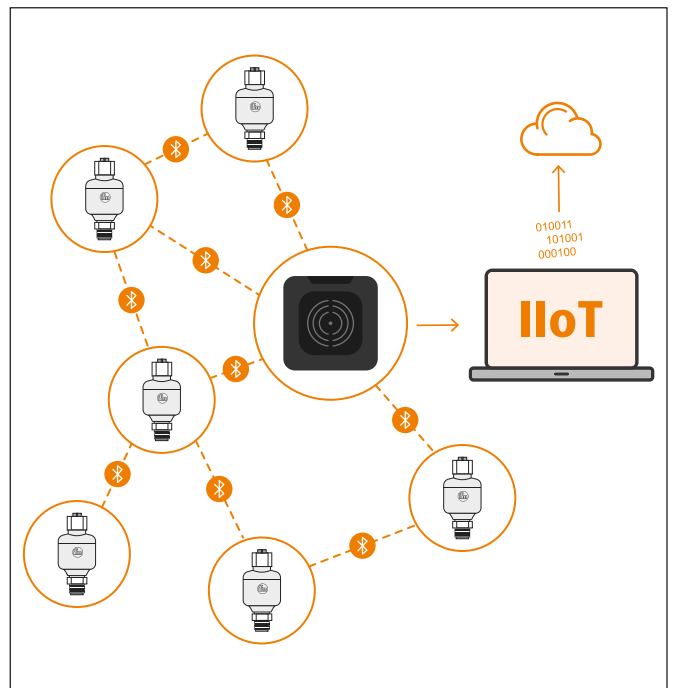
Convenient network management

You can easily manage the mesh network using our moneo software or the free **moneo|blue** smartphone app. Add new nodes, read out data or configure the sensors as required.

You can find more about setting up and managing the mesh network and further details about the Bluetooth mesh system on our website.

Discover and download
moneo|blue now.

BEST FRIENDS

moneo|RTM
Analysis software for simple condition monitoring

moneo|blue
Manage IO-Link devices conveniently via the smartphone app

VVB vibration sensor
Easy condition monitoring via IO-Link

For further technical details, please visit:
ifm.com/fs/EIO344

For enhanced machine teamwork

CANwireless: effective local M2M dialogue

- For CAN data exchange between machines via WLAN or Bluetooth

- 2 CAN interfaces allow for transmission of signals from motor control and additional sensors

- Interface for maintenance staff for easy data analysis and software updates

IP67   E1

ifm – close to you!

Efficient interaction of collaborative machines

The CANwireless modules enable machines to automatically exchange relevant data in a local mesh system via WLAN or Bluetooth. For example, with vehicles driving in formation, driving speed and direction can be precisely synchronised. Further information, such as the remaining load capacity, can for example help optimise process flows in the removal of goods.

The device has two CAN interfaces, allowing for transmission of both, data from motor control and sensor data collected via another CAN network.

Reading maintenance requirements, importing updates

Depending on the operating mode, the CANwireless device automatically connects to an existing network for data exchange or establishes its own network. This allows, for example, maintenance staff to read out data via a laptop on site or import software updates.

Targeted information exchange

To relieve the mesh system of unnecessary data transfer, the user can freely define the data to be transmitted via the CANwireless interface.

Description	Order no.
CANwireless with internal antenna	**CR3132**
CANwireless with external antenna connection	**CR3133**

Technical data	
Internal interfaces	2x CAN
External interfaces	WLAN, Bluetooth
Radio approvals	CE/RED, UKCA, FCC, ISED, MIC
Protection rating	IP67

BEST FRIENDS

Control electronics
Standard and safety controller in one device

robust HMI
Dialogue module with integrated controller

ioControl
Decentralised connection of sensors, freely programmable

For further technical details, please visit:
ifm.com/fs/CR3132

The all-rounder among the displays

Multifunction display for various measured values

- Universal measurement input for various types of signals (current, voltage, frequency, pulses, PT100/PT1000 and thermocouples)

- Colour TFT display with extensive digital labelling

- Intuitive menu structure with help texts for easy parameter setting

- 8 adjustable alarms and 2 relay outputs

- Low installation depth with standard panel cut-out

ifm – close to you!

IP65

Technical data DX1063		
Inputs:		
Voltage	[V]	0...10
Current	[mA]	0...20
Frequency	[kHz]	up to 10
Pulse counter		up to 9999
PT100, PT1000, depending on the sensor	[°C]	-200...850
Thermocouple, depending on the sensor	[°C]	-270...1820
Switch points / alarms		8
Outputs		2x relay
Protection rating		IP65

Takes (almost) all signal types

A measured value high up in the "cloud" increases the global – but not always the local – visibility of information. For this purpose, the new multifunction display with a universal measurement input is the right choice in almost all applications.

It can detect and convert analogue standard signals, pulses, frequencies and temperature sensors and display the measured value in the required unit directly on site.

Clear representation

The TFT display offers various possibilities and colours to visualise the measured value. The unit of measurement also displayed, the signal name and the location tag clearly explain the meaning of the displayed value.

The different font and background colours of the definable alarms help to evaluate the measured value. Via the two relay outputs, individual alarms can be transferred to higher-level systems, or simple controls can be realised.
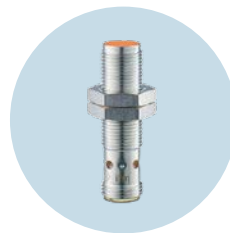

BEST FRIENDS

Temperature sensors
Precise measurement of temperatures

Pressure sensors
Accurate measurement of pressure values and levels

Inductive sensors
Detection of the position of moving objects

For further technical details, please visit:
ifm.com/fs/DX1063

Making the right move

ifm mate: assistance system for manual workstations

- AI-based system helps with assembly and packaging activities

- Intuitive user guidance simplifies set-up and everyday handling

- Further information on work steps facilitates the learning process

- No additional tracking items such as wristbands or VR glasses required


ifm – close to you!

Support, the easy way

With **ifm mate** you gain a patient and – theoretically – omniscient colleague for your manual workstations. Whether assembly work or packaging tasks: With **ifm mate** you can define, explain and carry out every manual work process step by step.

The core of the system is an AI algorithm that recognises the worker's hands in combination with the camera mounted above the workstation – without additional and obstructive gadgets such as wristbands or VR glasses. The defined workflow of the process is shown on the display, as well as optional supporting content such as videos or graphics.
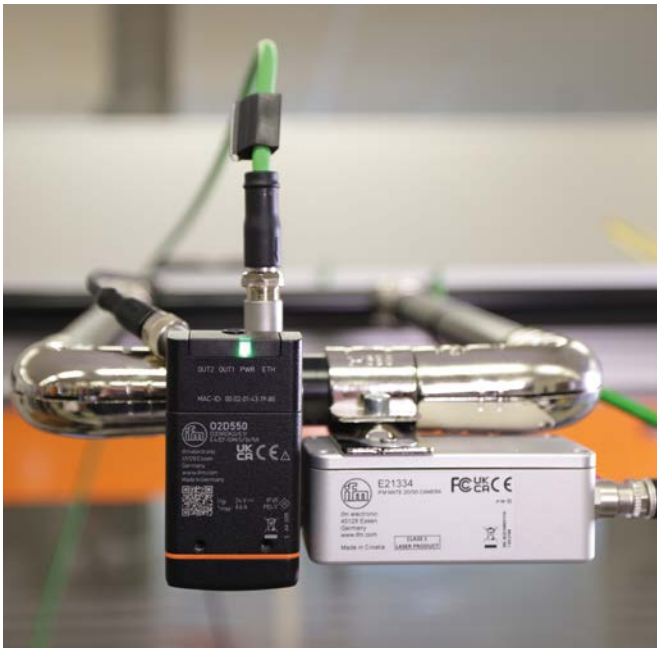
Description	Order no.
ifm mate worker assistance system	**OXZ100**

Quality assurance with a learning effect

mate also clearly indicates deviations from the defined workflow. The missed process step is repeated until it has been carried out correctly. This improves the learning curve for the worker and ensures a high quality of execution.

Sensor integration and central library

O2D5 vision sensors can be seamlessly integrated into **mate** for even more effective quality control of the workpieces, for example via target/actual contour analysis. Via REST API, the system can communicate with higher-level IT infrastructure and transmit information about the current order status or assembly progress. Dialogue with SAP is also possible so that order planning can be done centrally for the individual systems.
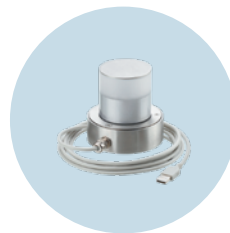
Learn more about the range of functions at **mate.ifm**.

BEST FRIENDS

O2D5 2D vision sensor
For the analysis of surfaces and contours

Monitor with touch panel
For display and operation of ifm mate

Signal lamp
LED lamp with USB connection for visual status indication

For further technical details, please visit:
ifm.com/fs/OXZ100

Whoever says digitalisation will also say moneo.

moneo: The IIoT tool kit for industrial evolution.

Did you know that only 5 percent of sensor data is used by your PLC? Can you imagine that with the remaining 95 percent of the sensor data, you can achieve a plant transparency that allows you to permanently optimise your processes? Save costs, resources and support your employees in getting the best out of the machines while achieving high product quality. Use an IIoT software solution that provides you with the right tools and grows with your challenges. Discover moneo.

moneo makes processes and their individual participants visible, tangible. Unplanned downtimes or soaring energy costs can be avoided with the help of this information. But moneo would not be moneo (and ifm would not be ifm) if this were the end of the story. Imagine what other steps could be optimised via the digital visualisation of all manufacturing processes along the entire chain...

Create added value

What sensors generate and send to the IT level is initially nothing more than data, values, signals, zeros and ones. With moneo, they become information, a basis for action and added value, in short: valuable insights. For example, regarding the total value of the stocks of critical means of production, even if they are stored at different locations. Or regarding the health of engines and rotors. Or regarding the optimum moment to change tool attachments. Or much more.

Flexibility 4.0: moneo grows with you

In what areas would you like to benefit from innovative digitalisation solutions? Device management, condition monitoring and energy management are three applications for whose optimisation moneo and ifm offer the appropriate tools. And whether it's a single machine or an entire plant, moneo is scalable and offers you what you need. If digitalisation is an adventure trip into the unknown, then moneo is the driving assistant that keeps you safely on track.
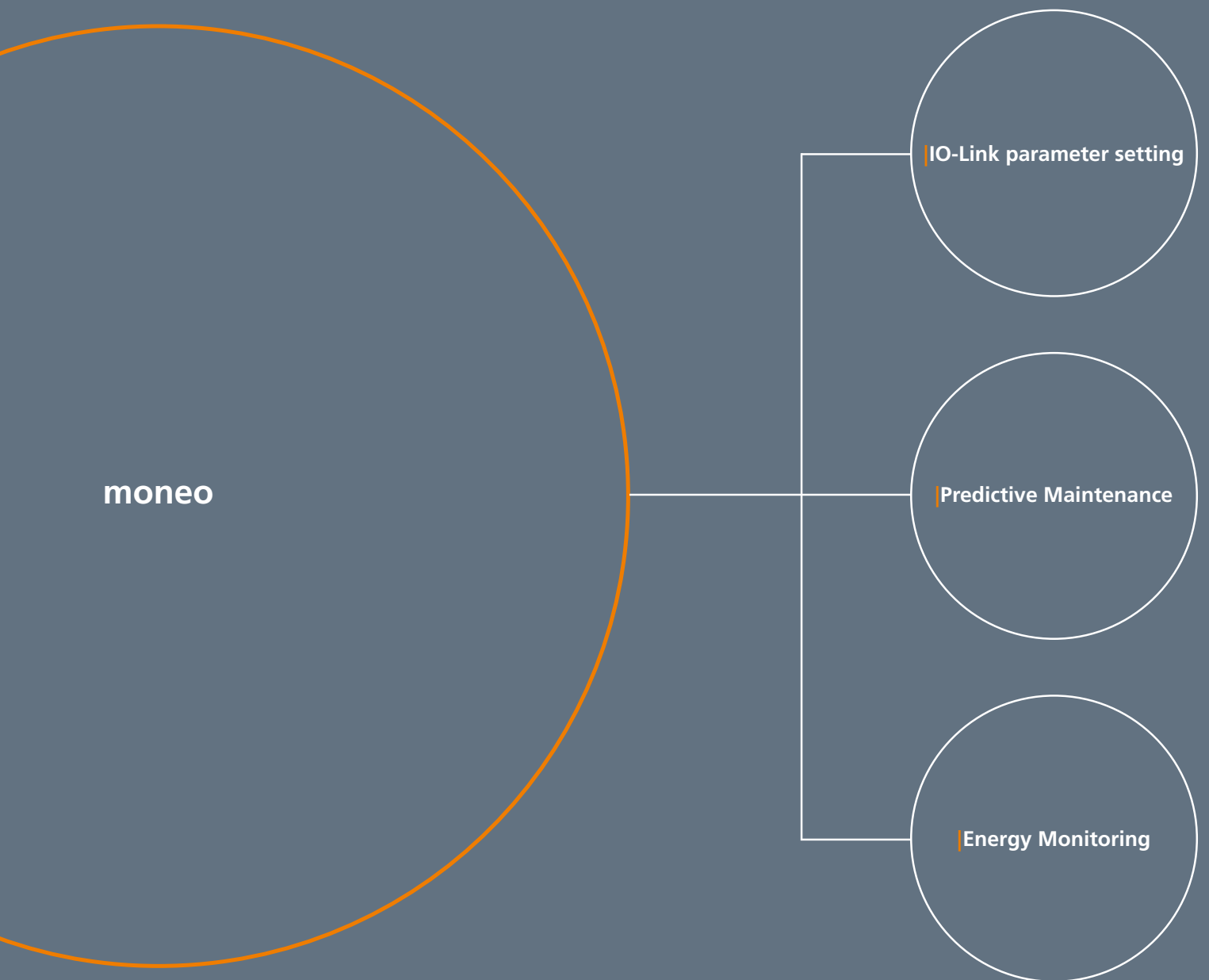
moneo

IO-Link parameter setting

Predictive Maintenance

Energy Monitoring

Simple setting of IO-Link parameters

Sensors create the information basis for a constant insight into the condition of your systems and thus facilitate their maintenance. But what about the infrastructure itself? Are the connected sensors, masters and evaluation units working? With the parameter setting software **moneo|configure*** you can find this out with just a few clicks. The onboarding of new or replacement units and parameter setting are just as quick and easy. Would you like to check some sensors while walking through your production? Simply download our moneo|blue app to your smartphone and install the appropriate Bluetooth adapter and you're ready to go.

*also available as stand-alone version **moneo|configure SA**

Plant conditions at a glance

Would you like to use sensor data directly or compile and link individual data sources with logical and mathematical operators with just a few mouse clicks?

In the graphical data modeller of **moneo|OS** you can generate exactly the information you need. This allows you to capture visualised representations in the cockpit at a glance or use them in other moneo modules. The choice is yours.

Does the engine need to be serviced? Is the tool already worn? Is quality maintained? Do you know these questions? Vibrations can tell you a lot – or rather everything – about the health of moving machine parts. With **moneo|RTM** you can easily create a plant ECG that helps you to plan maintenance in advance and minimise rejects. With AI support from the **moneo|DataScience Toolbox**, you can set dynamic thresholds based on the target values of the vibration curve.

Transparent detection of energy consumption

With your car, you are certainly glad to have a tyre pressure sensor. Because it lets you know in good time when the air needs to be topped up or the tyre needs to be changed because it is defective. This is for your safety. If air escapes undetected in your compressed air system, this has no effect on your personal safety at first, but the unnecessary costs incurred directly affect the operating result.

With our compressed air meters, you can precisely detect all relevant values of the compressed air flow from the beginning to the end: total consumption, pressure and the current flow rate.
In **moneo|OS** you can easily trace the path of the air with the help of this data or set values in relation to each other. Pressure drops, excessive consumption? These indicators of leaks or malfunctions become visible immediately. Efficient energy management has never been so convenient!

www.moneo.ifm

Turning the dream of clockwork into reality

How the IIoT can help you achieve a perfectly synchronised supply chain

Reference 57260, Aeternitas Mega 4, Calibre 89. If this name gets you excited, then you are definitely someone who is fascinated by the art of watchmaking. And that is totally understandable. It really is incredible to see how countless complications – as a horologist calls the different functions of a watch – can be implemented in such a small space. It's all down to precise interaction of cogs, springs, levers and shafts. Of course, a work of art like this doesn't come about overnight. It took around eight years for the 2,826 components of the Reference 57260 to be conceived, developed, produced and assembled, resulting in no less than 31 hands that provide 57 different functions. Sorry, we mean complications.

Complicated? It doesn't have to be that way.

The issue of time (and unfortunately sometimes also the issue of complications) plays a crucial role in supply chain management. Every unused or wasted unit of time costs money. Efficiency is to a supply chain manager what perfection is to a watchmaker. And they are essentially one and the same thing. To achieve maximum efficiency, all the units involved need to engage perfectly with one another, like clockwork, at all times. That is the only way to deliver the best possible results across all functions – ideally without any complications getting in the way. It sounds complicated but it's not really. At least not if you look for experienced supply chain specialists to perform the task, just like a watchmaker. They have perfected the craft of composing and synchronising all the cogs in the supply chain over many decades.

The first bit of good news is that you've already found these experts. The second bit of good news is that our seamless combination of sensors and software can turn your dream of perfectly clean, well-oiled and pleasantly whirring clockwork into a reality much more quickly than the example we talked about earlier.

Bringing two worlds together: GIB SCX meets Industry 4.0

How does it work? Very easy: We bring the production and IT levels closer together, ideally using existing frameworks. No matter whether we are talking about machine maintenance requirements, production capacity or intralogistic material flows: in Industry 4.0 they are all recorded using sensors, forwarded to the IT level and converted into readable information, for example using the moneo IIoT software. Our native "Shop Floor Integration" interface sends the information to SAP in real time. There, thanks to our "GIB SCX" supply chain solution, which also has native SAP integration and certification, all of the operational and strategic units involved access the exact same standardised data. This creates transparency and ensures that all subprocesses are perfectly synchronised. This means that everyone from purchasing to shipping can respond very quickly to even unscheduled maintenance requirements or spur-of-the-moment large orders. Everything is integrated and coordinated.

One cog engages with the other. Complex operations that were previously carried out manually run automatically in the background. Like the delicate work of art behind a clock face. An onlooker only sees the information displayed. But they know that the clockwork is running.

Precisely, cleanly and reliably. We turn the dream into a reality.

Who says digitalisation is easy?

We do!

ifm system sales: your one source digitalisation partner

What do people really think about when they talk about digitalisation?
Where do they think they will struggle? And why?

Digitalisation is not a mystic, magic sword that only the bravest ones are able to pull out of the granite rock. Digitalisation is more like riding a bicycle. Of course, you must learn it. But yes, you will learn it quickly. All you need to get started is a bike that fits your size and a good teacher on your side. And once you take the first miles, you will never even think about the complex moving and balancing processes that are needed to ride on that steel-on-wheels-thing to any place you want to. You just do it.

Same for digitalisation. And as chance would have it, we don't sell bikes for more than 50 years but are a reliable address for everything you need to start your digitalisation: sensors, infrastructure, software – and expertise.

More comfortable than a ride in Copenhagen

You will get the whole path the sensor data will follow in this adventure 4.0 from us. From one single source. That means: no hurdles, no cobblestones, no dead ends, no missing links, no non-matching interfaces. Just a seamless, flawless avenue. More comfortable than the most comfortable bicycle lane you can imagine – even if you live in Copenhagen.

As we said, we are also there for you to teach and support you on any of your steps on the digitalisation process. We have been specialists for automation and digitalisation for more than five decades and it would be a pleasure for us to share our experience with you. We will help you keep yourself on that bike until you feel confident enough to ride the rest of the path alone. The best-fit equipment and the best possible teacher. Both from one hand.

Let's go for a ride!

This is how it goes:
The flawless ifm data avenue

Do you want to know more about the health status of your fans or the best time to change the mechanical sealing of your pump? Do you want to be told when your compressor needs maintenance or your cooling circuit has a leak that needs to be fixed?

The easiest way to get this information is to let the machines tell you. And the easiest way to get the machines tell you is to contact us. We know where to put sensors to get the big health picture. We know what infrastructure is needed to get the data to your plc and to your IT level. And we know how to set the alarms to enable you to react early enough to prevent unexpected downtime and save a lot of money.

And at the end you will know all this, too.
Sounds good? Your machines say yes!

IT level
Software like the IIoT toolbox moneo processes the incoming data into value added information that helps the user to optimise his processes like internal and external supply chains or the maintenance management.

Middleware
IO-Link master, diagnostic electronics or edge devices gather and process data and transmit them to any destination where the data is further processed. This can be the plc and at the same time the IT infrastructure with ERP sytems, data memories or the cloud.

OT level
Sensors measure values like pressure, temperature, vibration, level or flow. Modern sensors with IO-Link can submit more than one value and also transmit more information like machine runtime or the number of process cycles.
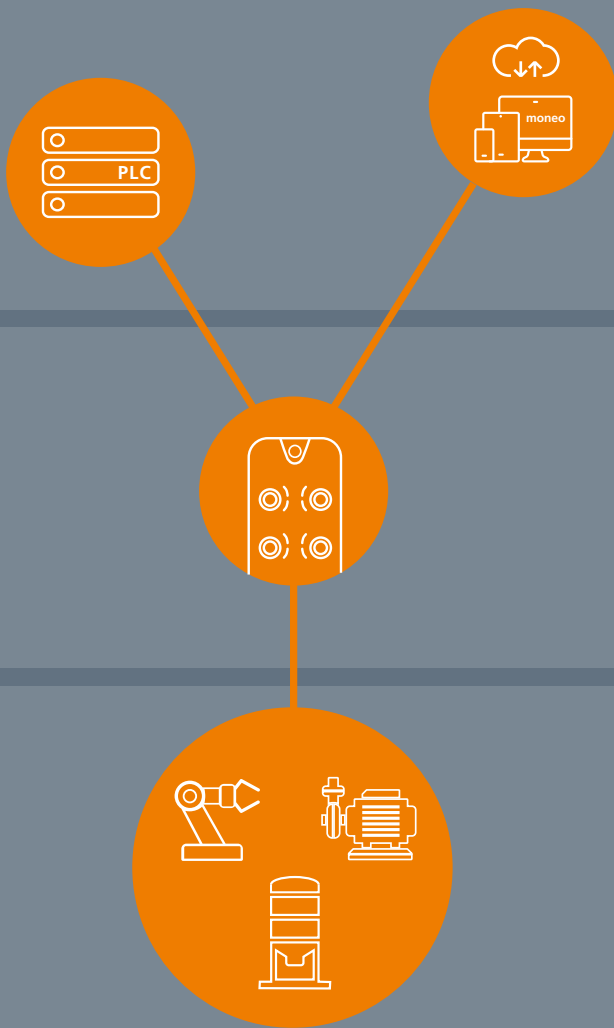
# Everything the automation heart desires.

## The online shop: Find more, search less.

Where does efficient plant automation start? We think: when shopping! And that's why our online shop is designed to guide you to your desired product as quickly as possible. At the same time, we also want to offer you maximum service when shopping online. For example, the selectors help you to narrow down the search to the suitable product versions. In your personal my ifm account you can easily import comprehensive order lists, create your own offers in no time and convert them into an order with just one click.

Products, accessories and interesting facts

Are you looking for the suitable accessories for your product? No problem! We have compiled everything you need to know about installation, parameter setting and set-up and added it to the respective product page. Of course, in our online shop you will also find lots of interesting information about the technologies in our sensors, inspiration in the form of application reports, factory certificates for free download, and, and, and...

So if you are thinking about how to shop more efficiently, a visit to ifm.com is definitely worthwhile!
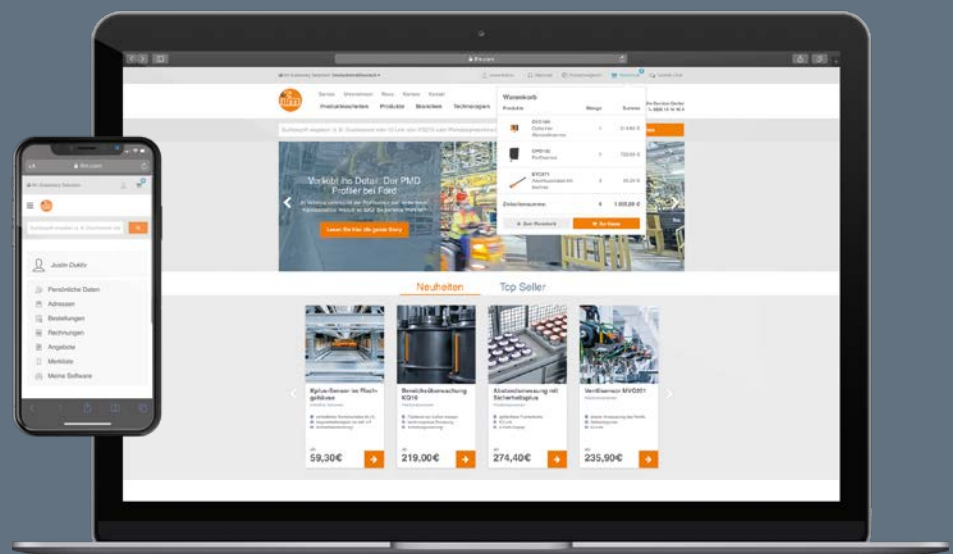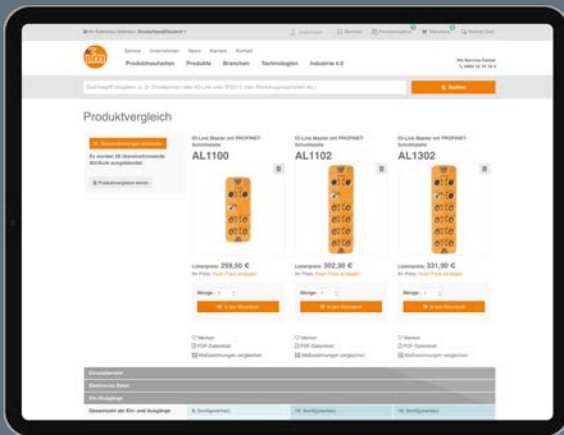
More transparency: Search for products, select, compare, get a support opinion, choose – and buy at your individual price.

More efficiency: Import order lists, create favourites, place previous orders again.

More flexibility: You decide how you pay and when we deliver. If you are in a hurry: use our express shipping.

More you: Create offers yourself, convert them into orders with one click, track shipments and status, save and retrieve invoices. my ifm – it's yours!

More future: Digitisation, Industry 4.0, finding solutions, downloading software, managing licences – all in one place.

More time: No closing times, no nasty surprises, shopping at any time, always up-to-date availability – and a reassuring 6 weeks' right of return.

That's it? Not by far!

Our entire product portfolio is available online!

ifm.com