

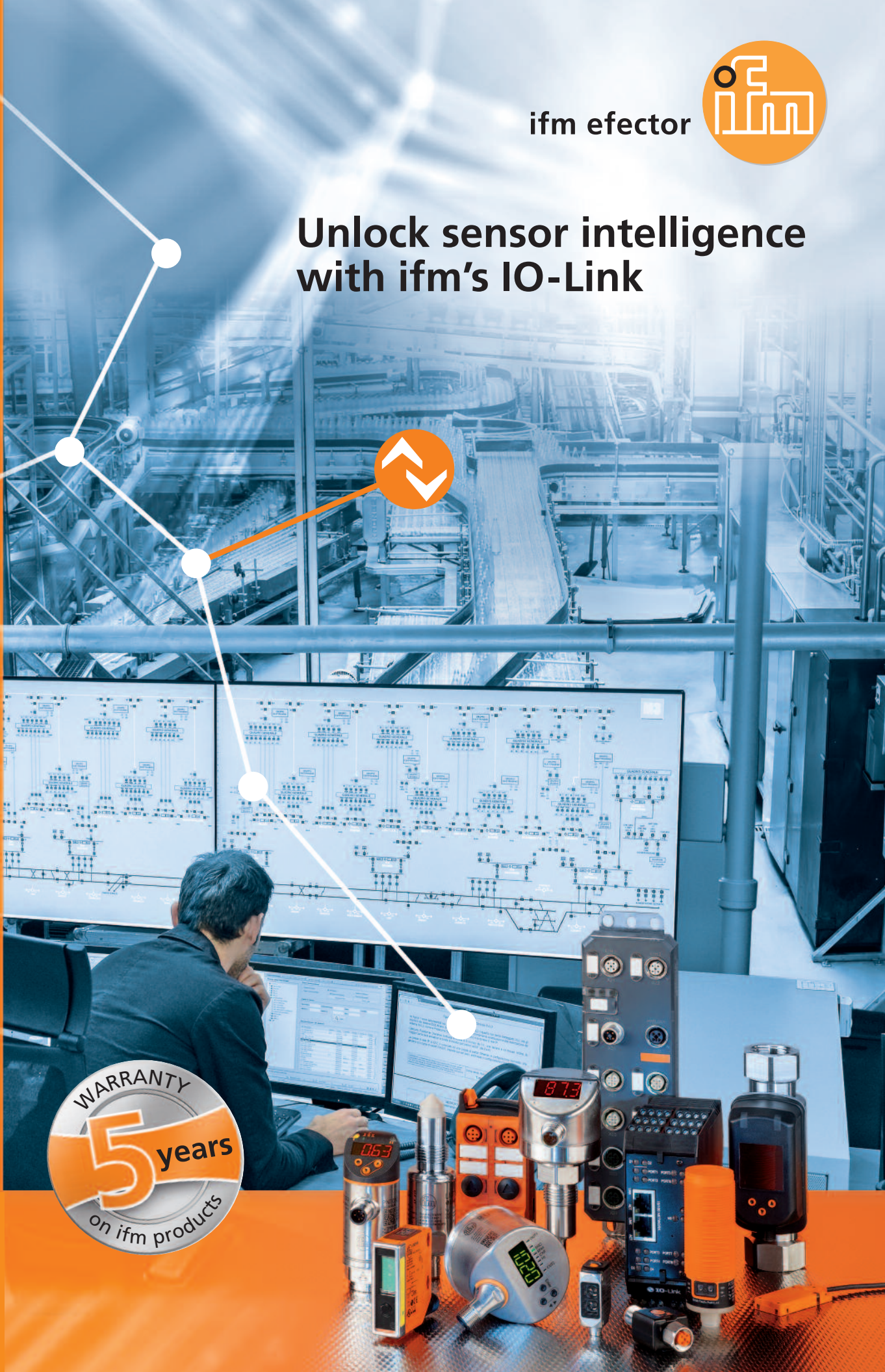
ifm efector



IO-Link

Unlock sensor intelligence with ifm's IO-Link

Industrial communication





ifm offers a variety of IO-Link I/O blocks and IO-Link compatible sensors.

What is IO-Link

Today's sensors have evolved from standard switches with simple on/off capabilities to highly intelligent devices with built-in microprocessors that process large amounts of data. The solution is IO-Link for unlocking the trapped intelligence in your sensors, providing the following benefits:

- Enables parameter changes to the sensor via the plc
- Allows simple plug-and-play replacement of sensors
- Provides digital transmission for more reliable and accurate signals than analog outputs
- Offers diagnostic feedback on the sensor's operation

IO-Link uses the existing microprocessors found in sensor electronics to communicate data. In addition, IO-Link uses existing connectors and does not require any special wiring which creates more flexibility for your production and maintenance with minimal or no increase in cost.

Who developed IO-Link

IO-Link is a consortium of sensors and PLC manufacturers dedicated to unlocking the trapped data in sensors! The main goal of the consortium is to enable users to extract sensor intelligence without adding cost.

IO-Link features

Plug and Play

Plug-and-play sensor replacement: Restoring the sensor or actuator parameters automatically when replacing and servicing the sensors.



Recipe changes: Send recipe changes directly to multiple sensors with the push of a button. Downtime and production changeover is minimized.



Pure digital signal: Provides pure digital signal value that is noise-immune and more reliable than conventional analog signals.



Sensor health: On existing wiring, additional diagnostic information can be transferred for easier fault location and predictive indication.

PLC

Remote parameterization: Access to all available parameters of the sensors can be reached through the PLC without the need for external software and local sensor display.



Not a fieldbus dependent system: IO-Link can be added to most existing control architectures with minimal cost.



The factory of the future will be smart because data will flow from field devices to ERP.

IO-Link Unlocks sensor intelligence

Sensor parameterization

Today: Change parameters via on-board pushbuttons.



IO-Link: Sensors can be parameterized remotely by PLC.



Automatic device replacement

Today: If a sensor needs to be replaced, the sensor must be re-programmed with pushbuttons.

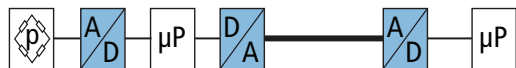


IO-Link: Data is automatically uploaded to a sensor. No need for manual parameterization.



Analog vs. IO-Link digital

Today: Analog signals require multiple analog-to-digital conversions that affect the accuracy of the sensor's output signal.

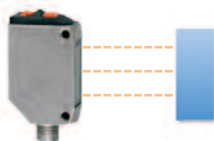


IO-Link: Requires only one analog-to-digital conversion. This avoids conversion losses of up to 1% accuracy.



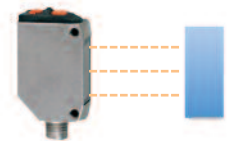
Diagnostic information for predictive maintenance

Today: It is not possible to obtain diagnostic information without changing or adding wiring in the PLC.



Ex. Clean lens 100% excess gain

IO-Link: Transfers diagnostic information on existing wiring allowing for predictive maintenance.

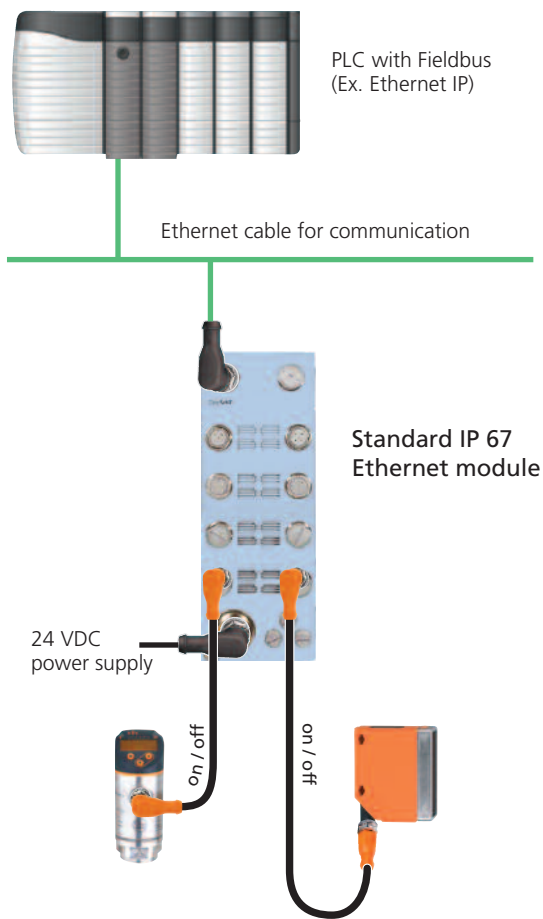


Ex. Dirty lens 40% excess gain

IO-Link adds intelligence to standard industrial controls

Current automation controls architecture

In a standard Ethernet architecture, sensors can only transmit simple on/off or analog signals to the PLC. To access trapped data in the sensor, complex fieldbus networks must be implemented, increasing cost, utilizing network capacity and limiting the number of I/O.

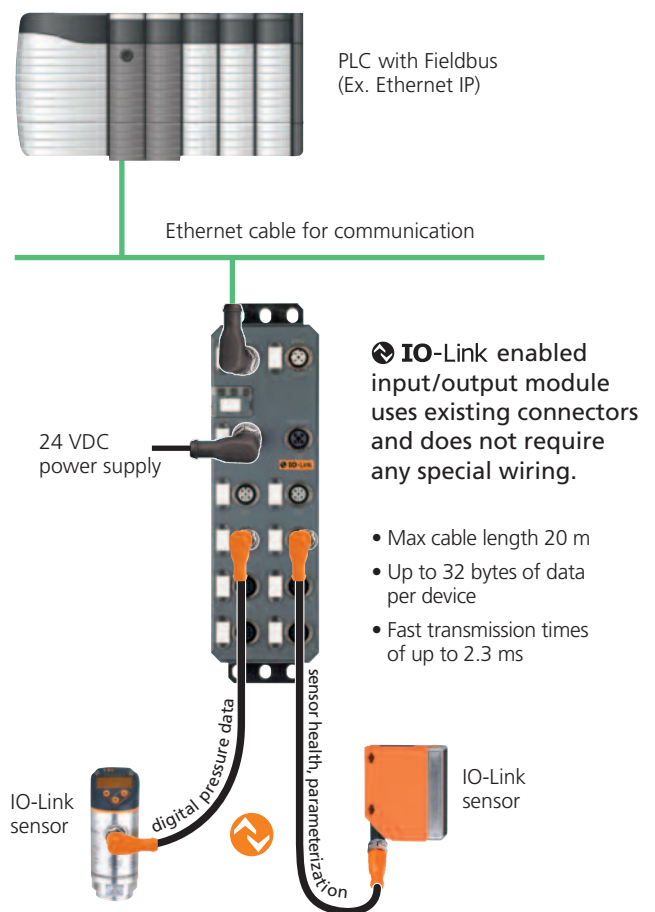


Sensor data is trapped

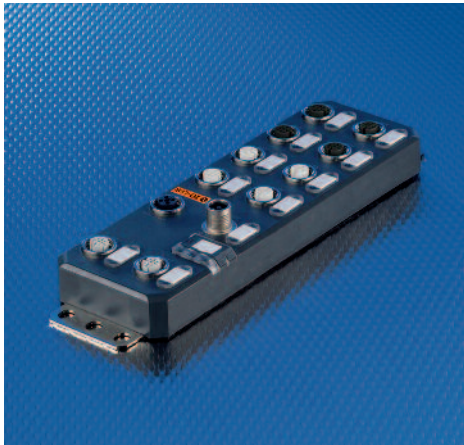
IO-Link Automation controls architecture



IO-Link is a communication interface that operates using standard sensors with IO-Link capabilities and 3-wire cord-sets. IO-Link unlocks the data in sensors. No special wiring is required. Data, such as diagnostics, parameter information and a true digital process value can be transmitted.




IO-Link unlocks the data in sensors








IO-Link master blocks for field installation

- 8 configurable ports for IO Link, digital inputs or digital outputs
- IO-Link 1.1 compatible with COM1, COM2, COM3 and SIO support
- Compact M12 T-coded power cables can carry up to 12A of power
- 2 Ethernet ports 10/100 Base-TX with integrated switch
- Fully potted to handle harsh industrial environments






Type	Description	Interface	Part No.	List Price (1-pc.)
IO-Link Master block				
	8-port IO-Link master, IP67	Profinet	AL1000	\$375.00
	8-port IO-Link master, IP67	Profibus	AL1010	\$410.00
	8-port IO-Link master, IP67	Ethernet IP	AL1020	\$375.00
	8-port IO-Link master, IP67	Ethercat	AL1030	\$375.00

Accessories – AL1000, AL1020, AL1030

Type	Description	Part No.	List Price (1-pc.)
Required Ethernet Cables (choose one)			
	M12 Ethernet cable, 2 m	E11898	\$45.00
	M12 Ethernet cable, 5 m	E18422	\$54.00
Required Power Cables (choose one)			
	M12 T-coded power cable, 2 m	E12430	\$37.00
	M12 T-coded power cable, 5 m	E18519	\$55.00
Ethernet Patch Cables (Optional)			
	M12 to M12 Ethernet cable, 2 m	E21138	\$85.00
	M12 to M12 Ethernet cable, 5 m	E21139	\$92.00
Power Patch Cables (Optional)			
	M12 to M12 T-coded patch cable, 2 m	E12426	\$63.00
	M12 to M12 T-coded patch cable, 5 m	E12427	\$80.00
Sensor Hubs* (Optional)			
	Sensor hub, 8 inputs	AL2400	\$116.00
	Sensor hub, 16 inputs	AL2401	\$141.00

* Used to connect standard digital sensors.
Patch cables required.

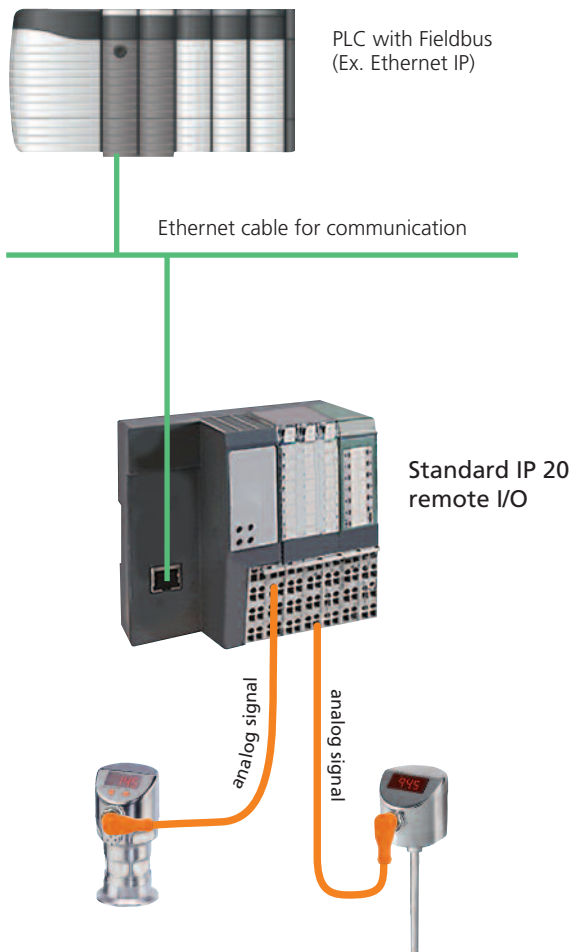
Accessories – AL1010

Type	Description	Part No.	List Price (1-pc.)
Required Fieldbus Cables (choose one)			
	M12 Profibus cable, 2 m	E12320	\$29.00
	M12 Profibus cable, 10 m	E12321	\$86.00
Required Power Cables (choose one)			
	M12 T-coded power cable, 2 m	E12430	\$37.00
	M12 T-coded power cable, 5 m	E18519	\$55.00
Terminator Resistor (Optional)			
	Profibus terminal resistor	E12315	\$15.00
Power Patch Cables (Optional)			
	M12 to M12 T-coded patch cable, 2 m	E12426	\$63.00
	M12 to M12 T-coded patch cable, 5 m	E12427	\$80.00
Sensor Hubs* (Optional)			
	Sensor hub, 8 inputs	AL2400	\$116.00
	Sensor hub, 16 inputs	AL2401	\$141.00

IO-Link adds intelligence to standard process controls

Current process controls architecture

In a standard Ethernet architecture, sensors can only transmit simple on/off or analog signals to the PLC. To access trapped data in the sensor, complex fieldbus networks must be implemented, increasing cost, utilizing network capacity and limiting the number of I/O.

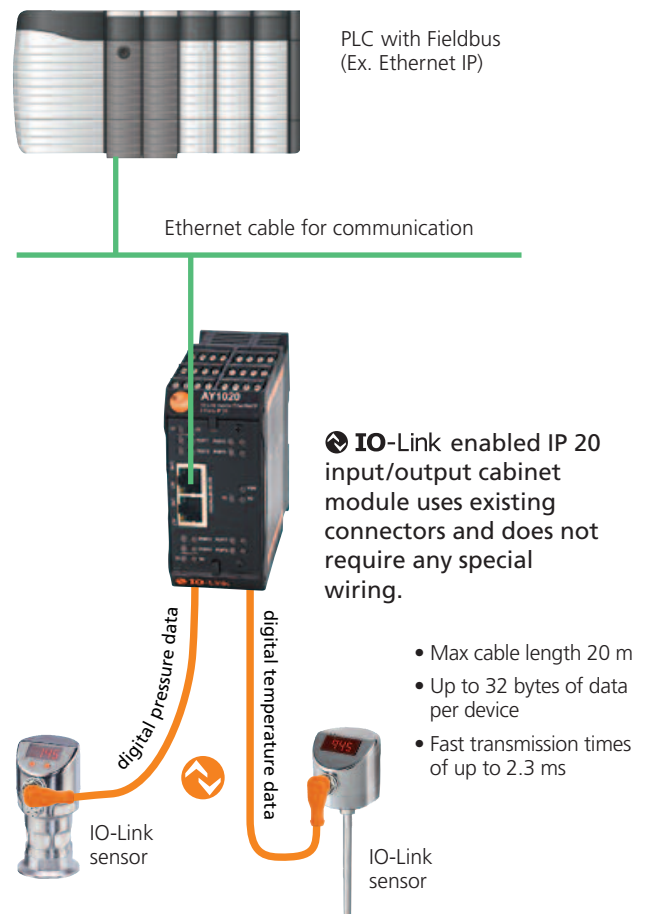


Sensor data is trapped

IO-Link Process controls architecture



Typical process controls use IP20 modules in enclosed cabinets. ifm offers the AY Series as a solution for this type of installation. IO-Link transmits a pure digital signal which increases reliability and accuracy. Data, such as diagnostics and parameter information can be accessed without the loss of system performance.




IO-Link unlocks the data in sensors




IO-Link master blocks for cabinet installation

- 8 configurable ports for IO Link, digital inputs or digital outputs
- 10 additional digital inputs and 2 configurable digital inputs / outputs
- IO-Link 1.1 compatible with COM1, COM2, COM3 and SIO support
- 2 Ethernet ports 10/100 Base-TX with integrated switch
- Slim housing for control cabinet mounting

Type	Description	Interface	Part No.	List Price (1-pc.)
IO-Link Master Block				
	8-port IO-Link master for control cabinets, IP 20	Profinet, modbus TCP	AY1000	\$435.00
	8-port IO-Link master for control cabinets, IP 20	Ethernet IP, modbus TCP	AY1020	\$435.00

Cordsets

Type	Description	Part No.	List Price (1-pc.)
	M12 Micro DC (4-pin) 2 m, PVC	EVT064	\$18.00
	M12 Micro DC (4-pin) 5 m, PVC	EVT001	\$19.00
	M12 Micro DC (4-pin) 10 m, PVC	EVT002	\$22.00
	M12 Micro DC (4-pin) 20 m, PVC	EVT093	\$32.00



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About ifm

ifm is a privately-held global manufacturer of sensors and controls for industrial automation, producing more than nine million sensors annually. Products include position sensors, motion control sensors, vision sensors, safety products, process sensors, industrial networks, machine condition sensors, and wiring technology. ifm's USA Corporate Headquarters, Manufacturing Facility and Logistics and Distribution Centers are located in Southeastern Pennsylvania.

ifm is a subsidiary of the German-based company ifm electronic gmbh. ifm electronic was established in 1969 and currently has more than 70 subsidiaries located in all major countries. ifm's global reach ensures that customers can count on local support all over the world.

- Globally, ifm employs more than 5,000 dedicated employees.
- Employees serve over 115,000 purchasing ifm customers worldwide.
- ifm's core competency for industrial product design is to develop products with robust housings, easy user interfaces and flexible output stages.
- ifm makes large investments in R&D and employs over 600 development engineers. Our R&D team has more than 600 registered ifm patents.
- Annual global sales exceed \$850 million USD.

ifm – close to you!