



Top product features!

- Encoders with programmable resolution from 2 to 10,000 and selectable HTL / TTL output
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Functions as an encoder, counter or speed/direction monitor
- Dual color digital display for at-a-glance monitoring
- Solid or hollow shaft designs of varying diameters and flange options
- Industry standard M12 connectors

Intelligent incremental encoder with digital display and IO-Link

NEW! Incremental encoders provide accurate feedback of the position of rotating shafts on machinery. ifm now introduces a versatile line of intelligent encoders that can perform in three capacities: as an encoder, counter or speed / direction monitor. Evaluating pulses in the encoder reduces the burden on your controller. These encoders incorporate features that are ideal for applications found in the material handling, packaging, automotive, wood and print / paper industries.

Easy setup via pushbuttons or IO-Link

A simple pushbutton menu allows the encoder resolution to be programmed from 2 to 10,000 and the output is selectable for either HTL or TTL. Parameters may also be set via ifm's LineRecorder Device software or IO-Link. There's no need to stock multiple encoders!

Two color digital display for easy monitoring and troubleshooting

These intelligent encoders are designed with a two color (red / green) integrated digital display for indicating if process values are in an acceptable range or if limits have been exceeded. The display values can also be electronically rotated 180° increasing installation flexibility.

Reliable performance in various options

ifm's incremental encoders operate using magnetic technology and provide the accuracy of traditional optical encoders with the robustness of magnetic encoders. They withstand shock and vibration, offer high switching frequencies and are available with a 6 mm or 10 mm diameter solid shaft or 12 mm diameter hollow shaft. These encoders have a rotatable industry standard M12 connector that may be positioned radially or axially.



ifm's intelligent encoders feature a dual color (red / green) digital display for indicating if process values are in an acceptable range or if limits have been exceeded.



ifm's intelligent encoders include a 32-bit microprocessor. With a resolution of 16-bits, a precision < 0.1% (12 bits) can be reached. Signal transmission is fast!

Company	IO-Link	Position Sensors		Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control	Vision Sensors
	IO-Link	Inductive	Capacitive					Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

Housing Diameter (mm)	Shaft Diameter (mm)	Flange	Resolution (pulse/revolution)	Connection	No. of stators	Part No.	List Price (USD)
Hollow shaft with integrated stator coupling							
58	12	Direct	Max. 10,000 (adjustable)	M12 Micro DC	1	ROP520	\$250.00
58	12	Direct	Max. 10,000 (adjustable)	M12 Micro DC	2	ROP521	\$260.00
Solid shaft							
58	6	Servo	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RUP500	\$238.00
58	10	Clamp	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RVP510	\$238.00

Accessories

Type	Description	Part No.	List Price (USD)
	Spring disc coupling, Ø 6 mm / 10 mm, die-cast zinc; PA	E60117	\$51.00
	Spring disc coupling, Ø 10 mm / 10 mm, die-cast zinc; PA	E60118	\$51.00
	Fastening clamp for synchro flange, steel	E60041	\$2.00
	Flexible coupling with clamp connection, Ø 6 mm / 10 mm, aluminum	E60066	\$48.00
	Flexible coupling with clamp connection, Ø 10 mm / 10 mm, aluminum	E60067	\$48.00
	Flexible coupling with adjusting screws, Ø 10 mm / 10 mm, aluminum	E60022	\$48.00
	Flexible coupling with adjusting screws, Ø 6 mm / 10 mm, aluminum	E60028	\$48.00
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, smooth plastic tread	E60110	\$69.00
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, pimpled plastic tread	E60076	\$69.00
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, grooved plastic tread	E60138	\$57.00
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, knurled aluminum tread	E60095	\$57.00
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, grooved plastic tread	E60137	\$57.00
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, knurled aluminum tread	E60006	\$57.00
	Angle bracket for RUP design, aluminum, black anodized	E60033	\$63.00
	Angle bracket for RVP design, aluminum, black anodized	E60035	\$63.00
	Square flange for RUP5xx encoders	UD0004	\$25.00
	Square flange for RVP5xx encoders	UD0005	\$25.00

Accessories

Type	Description	Part No.	List Price (USD)
	LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	\$110.00
	USB IO-Link master for parameter setting and analysis of units	E30390	\$367.00
	Adapter cable for the connection between USB IO-Link master E30390 and encoder	E12432	\$40.00
	Memory plug to store sensor's parameters for easy upload without a computer	E30398	\$51.00

Cordsets, shielded

Type	Description	Part No.	List Price (USD)
	M12 Micro DC, 2 m, PUR cable	E12402	\$44.00
	M12 Micro DC, 5 m, PUR cable	E12403	\$53.00
	M12 Micro DC, 10 m, PUR cable	E12404	\$70.00

Technical Specs

Operating voltage	4.75...30 V DC
Current consumption	< 350 mA
Switching frequency	1000 kHz
Reverse polarity protection	yes
Short circuit protection	yes
Protection housing	IP 65, IP 67; shaft: IP 64
Connection	M12 connector, 8-pin (rotatable)

For more information on IO-Link, see pages 6 - 21.

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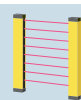
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Top product features!

- Encoders with programmable resolution from 2 to 10,000 and selectable HTL / TTL output
- Additional features such as plug-and-play replacement, real-time recipe changes and diagnostic feedback
- Digital transmission of shaft position value (single turn)
- Robust magnetic sensing principle
- Solid or hollow shaft designs of varying diameters and flange options
- Industry standard M12 connectors or prewired 2 meter cable

Programmable incremental encoder with IO-Link

Programmable encoders for industrial applications

Incremental encoders provide accurate feedback of the position of rotating shafts on machinery. ifm now introduces a versatile line of encoders. These encoders incorporate features that are ideal for applications found in the material handling, packaging, automotive, wood and print / paper industries.

Easy setup via IO-Link

Parameters may be set via ifm's LineRecorder Device software or IO-Link. The resolution can be programmed for 2 to 10,000 and the output is selectable for either HTL or TTL. There's no need to stock multiple encoders!

Reliable performance in various options

ifm's incremental encoders operate using magnetic technology and provide the accuracy of traditional optical encoders with the robustness of magnetic encoders. They withstand shock and vibration, offer high switching frequencies and are available with either a 6 or 10 mm diameter solid shaft or with a 6 or 12 mm diameter hollow shaft. These encoders are available with a rotatable industry standard M12 connector or 2 meter cable.



ifm's programmable incremental encoders allow you to select resolution and output type via IO-Link.



Program setpoints via IO-Link — M12 Micro DC connection

ifm's programmable encoders include a 32-bit microprocessor. With a resolution of 16-bits, a precision < 0.1% (12 bits) can be reached. Signal transmission is fast!

For more information on IO-Link, see pages 6 - 21.

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Company	IO-Link	Position Sensors		Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control	Vision Sensors
	IO-Link	Inductive	Capacitive					Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

	Housing Diameter (mm)	Shaft Diameter (mm)	Flange	Resolution (pulse/revolution)	Connection	No. of Stators	Part No.	List Price (USD)
Hollow shaft with integrated stator coupling	36.5	6	direct	Max. 10,000 (adjustable)	M12 Micro DC	1	RA3100	\$186.00
	36.5	6	direct	Max. 10,000 (adjustable)	M12 Micro DC	2	RA3101	\$193.00
	36.5	6	direct	Max. 10,000 (adjustable)	2 m cable	1	RA3500	\$186.00
	36.5	6	direct	Max. 10,000 (adjustable)	2 m cable	2	RA3501	\$193.00
	58	12	direct	Max. 10,000 (adjustable)	M12 Micro DC	1	RO3100	\$186.00
	58	12	direct	Max. 10,000 (adjustable)	M12 Micro DC	2	RO3101	\$193.00
	58	12	direct	Max. 10,000 (adjustable)	2 m cable	1	RO3500	\$186.00
	58	12	direct	Max. 10,000 (adjustable)	2 m cable	2	RO3501	\$193.00
Solid shaft	36.5	6	universal	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RB3100	\$178.00
	36.5	6	universal	Max. 10,000 (adjustable)	2 m cable	N/A	RB3500	\$178.00
	58	6	servo	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RU3100	\$178.00
	58	6	servo	Max. 10,000 (adjustable)	2 m cable	N/A	RU3500	\$178.00
	58	10	clamp	Max. 10,000 (adjustable)	M12 Micro DC	N/A	RV3100	\$178.00
	58	10	clamp	Max. 10,000 (adjustable)	2 m cable	N/A	RV3500	\$178.00

Accessories	Description	Part No.	List Price (USD)	Accessories	Description	Part No.	List Price (USD)
	Spring disc coupling, Ø 6 mm / 10 mm, die-cast zinc; PA	E60117	\$51.00		LineRecorder Device, software for parameter setting (requires E30390 cable)	QA0011	\$110.00
	Spring disc coupling, Ø 10 mm / 10 mm, die-cast zinc; PA	E60118	\$51.00		USB IO-Link master for parameter setting and analysis of units	E30390	\$367.00
	Fastening clamp for synchro flange, steel	E60041	\$2.00		Memory plug to store sensor's parameters for easy upload without a computer	E30398	\$51.00
	Flexible coupling with clamp connection, Ø 6 mm / 10 mm, aluminum	E60066	\$48.00		Square flange for RB3xxx encoders	UD0003	\$25.00
	Flexible coupling with clamp connection, Ø 10 mm / 10 mm, aluminum	E60067	\$48.00		Square flange for RU3xxx encoders	UD0004	\$25.00
	Flexible coupling with adjusting screws, Ø 10 mm / 10 mm, aluminum	E60022	\$48.00		Square flange for RV3xxx encoders	UD0005	\$25.00
	Flexible coupling with adjusting screws, Ø 6 mm / 10 mm, aluminum	E60028	\$48.00				
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, smooth plastic tread	E60110	\$69.00	Cordsets, shielded			
	Aluminum measuring wheel, 500 mm cir., 10 mm bore, pimpled plastic tread	E60076	\$69.00	Type	Description	Part No.	List Price (USD)
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, grooved plastic tread	E60138	\$57.00		M12 Micro DC, 2 m, PUR cable	EVC544	\$29.00
	Aluminum measuring wheel, 200 mm cir., 10 mm bore, knurled aluminum tread	E60095	\$57.00		M12 Micro DC, 5 m, PUR cable	EVC545	\$36.00
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, grooved plastic tread	E60137	\$57.00		M12 Micro DC, 10 m, PUR cable	EVC546	\$47.00
	Aluminum measuring wheel, 200 mm cir., 6 mm bore, knurled aluminum tread	E60006	\$57.00				
	Angle bracket for RUP design, aluminum, black anodized	E60033	\$63.00	Technical Specs			
	Angle bracket for RVP design, aluminum, black anodized	E60035	\$63.00	Operating voltage	4.75...30 V DC		
				Current consumption	< 150 mA		
				Switching frequency	1000 kHz		
				Reverse polarity protection	yes		
				Short circuit protection	yes		
				Protection	housing: IP 65, IP 66, IP 67; shaft: IP 64		
				Connection	M12 connector, 5-pin (rotatable)		

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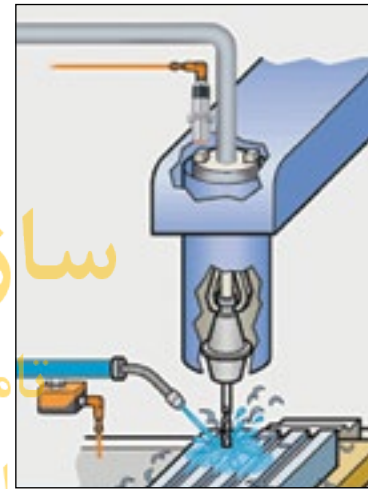
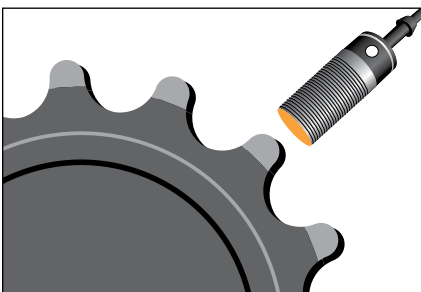
Top product features!

- 18 and 30 mm diameter speed monitors detect under-speed and over-speed conditions
- For rotational speed applications
- 18 mm quick disconnect offers 3-LED status display
- 30 mm units feature easy-to-adjust sensor setpoint
- Time delay eliminates nuisance trips

Evaluation system for self-contained speed applications

The compact speed monitor is an evaluation system for monitoring rotational speed, particularly over- or under-speed conditions. The sensor and evaluation electronics are integrated into a compact 18 and 30 mm diameter metal housing. The 3-wire version includes a "target-present" LED to simplify set up. The unit senses the speed of the rotating target and provides a digital output when the speed exceeds a customer-programmed set point.

Positioned to sense a bolt head, cam, or other target on a rotating shaft, the DI series speed monitor generates an internal pulse each time the target passes. Counting the pulse train determines if the shaft speed is above or below the set point.



Speed monitors can be used to detect under-speed conditions on spindle applications.

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Company	IO-Link	Position Sensors		Cylinder / valve position	Photoelectrics / lasers / fiber optics	Distance / Application specific	Ultrasonic	Motion Control	Vision Sensors
	IO-Link	Inductive	Capacitive					Encoders / Speed monitors	2D / 3D inspection
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Product + accessory selector

Dimensions (mm)	Range (mm)	Mounting	Output	Setting Range (Imp/min)	Supply Voltage (V)	Sensor Termination	Part No.	List Price (1-pc.)
M18 / L = 68	12	Nonflush	PNP, N.O. / N.C.	3...6000	10...36 DC	M12 Micro DC	DI6001	\$162.00
M30 / L = 82	10	Flush	PNP, N.O.	5...300	10...36 DC	M12 Micro DC	DI5009	\$196.00
M30 / L = 80	10	Flush	N.O.	5...3600	20...250 AC/DC	2 m cable	DI0101	\$185.00
M30 / L = 80	10	Flush	PNP, N.O.	5...3600	10...36 DC	2 m cable	DI5020	\$185.00

Optional Accessories

Type	Description	Part No.	List Price (1-pc.)	Type	Description	Part No.	List Price (1-pc.)
	Snap clamp for 18 mm sensor	E11048	\$8.00		M12 Micro DC (4-pin) 2 m, PUR	EVC001	\$11.00
	Snap clamp for 30 mm sensor	E11049	\$8.00		M12 Micro DC (4-pin) 5 m, PUR	EVC002	\$15.00
	Quick-mount sleeve for 18 mm sensor	E11115	\$14.00		M12 Micro DC (4-pin) 2 m, PUR	EVC004	\$11.00
	Quick-mount for 30 mm sensor	E10808	\$17.00		M12 Micro DC (4-pin) 5 m, PUR	EVC005	\$15.00
	L-bracket for 18 mm sensor	U20302	\$6.00				
	L-bracket for 30 mm sensor	U20303	\$6.00				

سازه گستر پایتخت

▶ Can't find the right speed monitor for your application, call 800-441-8246 or visit www.ifm.com/us

تامین کننده ملزومات برق

Technical Specs

Leakage current: <1.5 mA (DI0101)
 Housing material: Brass; PBT (Pocan); 316 stainless steel, PBT (DI6001)
 Operating temperature: -13...176 °F (-25...80 °C)
 Protection: IP67

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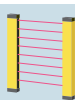
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Top product features!

- Monitoring of two limit values with separate output relays
- High input frequency of up to 60,000 pulses / minute
- Configurable functions, speed-proportional analog output
- Clearly readable, luminous OLED display
- Extended operating temperature range down to -40 °F

Versatile rotational speed monitoring and standstill detection

NEW! The speed monitors calculate the rotational speed by evaluating pulses. The transistor and relay outputs switch when adjustable limit values are exceeded or not reached. This allows, for example, reliable overspeed and standstill detection.

The DD2503 monitors the rotational speed of one channel with two separately adjustable limit values. A separate output is assigned to each limit value. The DD2505 monitors two separate input channels, each having one switchpoint.

Overspeed monitoring

Centrifuges, carousels or wind turbines are monitored for exceeded maximum rotational speed. The speed monitor gives a switch-off signal as soon as the speed is too high. This makes sure that the resulting centrifugal forces will not destroy the system.

Standstill monitoring

Standstill monitoring is used to detect torn conveyor belts, to monitor the V-belts of ventilators or to detect blocked screw conveyors. The speed monitor signals a dysfunction in case of unexpected standstills of the non-driven side of the machine.

Configurable output functions

The relay outputs are switched on or off in case the limit values are exceeded or not reached. They may also remain switched until they are manually reset. Optionally, the reset can take place automatically after an adjustable period of time.

The transistor outputs that can be used alternatively are switched to the relays simultaneously. These can, for example, be connected directly to a plc in order to transmit status messages.



Speed monitors switch when critical rotational speeds are exceeded or not reached.

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	IO-Link	Inductive	Capacitive					Encoders / Speed monitors	2D / 3D inspection
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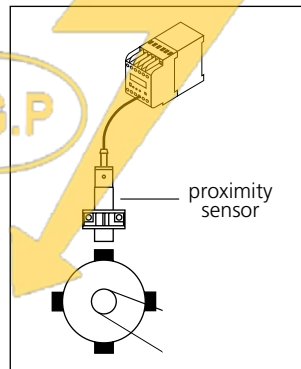
Operating Voltage (V)	Inputs	Input Function	Setting Range (pulse / min.)	Setting Range (Hz)	Analog Outputs	Relay Outputs	Transistor Outputs	Part No.	List Price (1-pc.)
110...240 AC/DC; 24 DC	1	PNP / NPN / NAMUR*	1...60,000	0.1...1,000	1	2	2	DD2503	\$365.00
110...240 AC/DC; 24 DC	2	PNP / NPN / NAMUR*	1...60,000	0.1...1,000	—	2	2	DD2505	\$413.00

*Note: NAMUR input is not intended for intrinsically safe applications in hazardous locations.

▶ Can't find the right sensor for your application, call 800-441-8246 or visit www.ifm.com/us

Technical Specs

Relay outputs:	2 changeover contacts 6 A (250 V AC)
Transistor outputs:	2 x PNP; externally supplied 24 V DC / max. 150 mA; short-circuit protection
Ambient temperature:	-40...140 °F (-40...60 °C)
Housing protection rating:	IP 50
Terminal protection rating:	IP 20
Function display:	OLED display; 128 x 64 pixels luminous
Input signal indication:	yellow LED
Switching status indication :	green LED



Inductive and capacitive proximity sensors or photoelectric sensors are ideal devices for an input signal to the speed evaluation system.

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