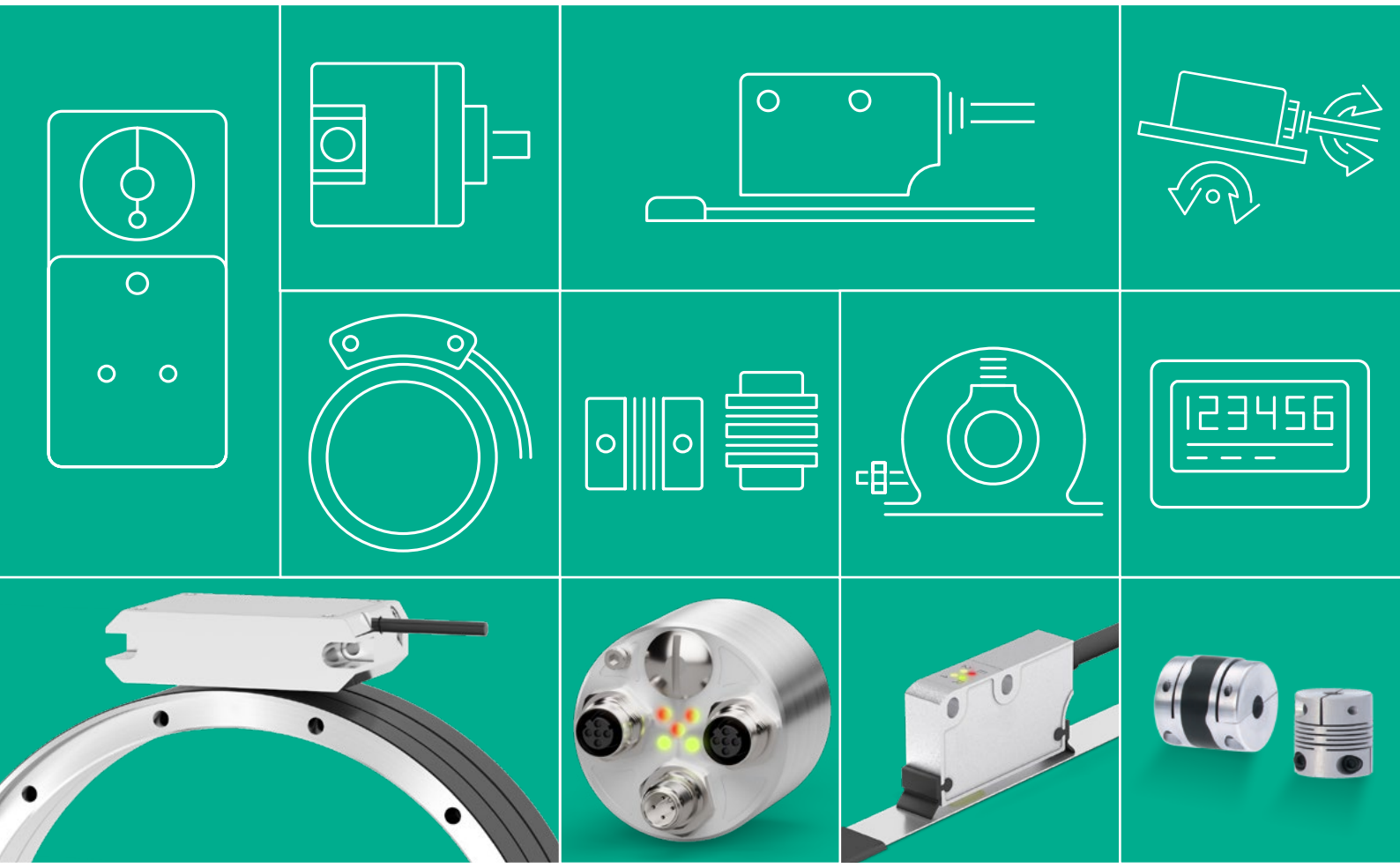
40 YEARS
YOUNG
1982.2022

lika®

Smart encoders & actuators



General catalogue

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POSICONTROL

Displays

An international family company, corporate profile

Lika Electronic stands for innovative rotary and linear encoders for motion control and positioning systems.
Since its inception in 1982, Lika develops and manufactures incremental and absolute encoders based on optical and magnetic sensing technologies.
The product portfolio is completed by rotary actuators, inclinometers, position displays, encoder interfaces, and signal converters.

Close cooperation with customers and long-lasting relationships are a key element of the company's culture and often lead to the design of important special projects in which Lika's expertise and flexibility can excel.
To better support the more and more frequent client and market requirements for customization Lika has built up Lika Lab, a business unit expressly focused on developing and manufacturing special products.

Lika operates globally with branches and an efficient distribution network and provides qualified customer service and technical support.
A wide range of industries rely on Lika's solutions such as packaging machines, robotics, medical technology, motors, aerospace, and many other sectors.

lika

lika lab

your customization

ROTAPULS

Incremental rotary encoders

Compact encoder from size Ø28 to Ø40 mm
Resolutions up to 4096 PPR

- Optical or magnetic sensing
- For installation in confined spaces
- Universal output circuit PP/LD

	 I28 • I30	 MI36 • MC36	 I40 • I41	 CK46 • CK41
Description	• Miniature encoder • Size 28, 30 mm	• Compact, size 36 mm • Robust and reliable	• Size 40 mm, versatile and multipurpose • Servo flange or ring nut	• Size 40 mm, versatile and multipurpose • Blind hollow shaft
Sensing method	optical	magnetic	optical	optical
Housing diameter	30 mm max.	36 mm	40 mm	41 mm
Resolution max.	2048 PPR	2048 PPR	4096 PPR	4096 PPR
Output circuit	Push-Pull Line Driver Universal circuit	NPN Push-Pull Line Driver	NPN, PNP, Push-Pull, Line Driver, Universal circuit	NPN, PNP, Push-Pull, Line Driver, Universal circuit
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5%, +10÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc
Shaft diameter max.	solid shaft Ø 6 mm	solid shaft Ø 6 mm hollow shaft Ø 6 mm	solid shaft Ø 8 mm	hollow shaft Ø 8 mm
Electrical connections	cable	cable	cable	cable
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	6000 rpm	12000 rpm	6000 rpm	6000 rpm
Protection max.	IP65	IP67	IP66	IP65
Application	Packaging Electromedical		Packaging Electromedical	Packaging Electromedical

ROTAPULS

Incremental rotary encoders

Size 58 for industrial applications
Precise optical or robust magnetic sensing

- Resolution up to 10000 pulses/revolution
- Solid, blind hollow or through hollow shaft

	 I58 • I58S	 I65 • IT65	 MC58 • MC59 • MC60
Description	• Size 58, servo or clamp flange • Resolution up to 10000 PPR	• Square flange or pilot flange • US/Imperial sizes • MIL standard connectors	• Through hollow shaft • Sealed circuits (option)
Sensing method	optical	optical	magnetic
Housing diameter	58 mm	65 mm	58 mm
Resolution max.	10000 PPR	10000 PPR	10000 PPR
Output circuit	NPN, PNP, 1Vpp, Push-Pull, Line Driver, Universal circuit	NPN, PNP, Push-Pull, Line Driver, Universal circuit	Push-Pull Line Driver Universal circuit
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc
Shaft diameter max.	solid shaft Ø 12 mm	solid shaft Ø 12 mm	hollow shaft Ø 15 mm
Electrical connections	cable M12, M23 connector	cable MIL connector	cable M23 connector
Operating temperature	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	12000 rpm	6000 rpm	6000 rpm
Protection max.	IP65	IP66	IP67
Application			

ROTAPULS

Incremental rotary encoders

Size 58 mm for industrial applications

- Blind hollow or through hollow shaft
- Precise optical sensing, resolution up to 10000 PPR

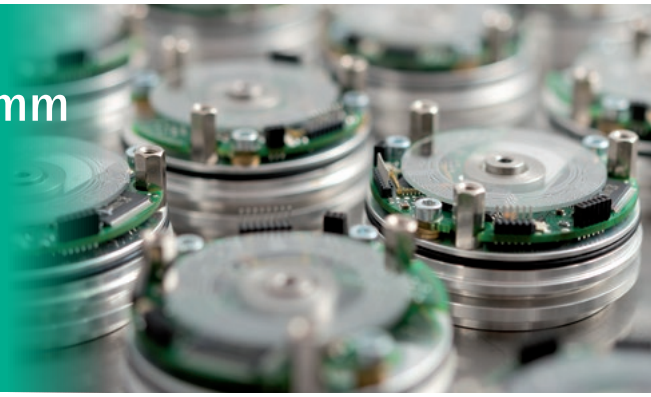
	 CK58 • CK59 • CK60	 C58 • C59 • C60	 C58A • C58R
Description	• Size 58, blind hollow shaft • Resolution up to 10000 PPR	• Size 58, through hollow shaft	• Size 58, through hollow shaft • Front or backside fixing with antirotation pin
Sensing method	optical	optical	optical
Housing diameter	58 mm	58 mm	58 mm
Resolution max.	10000 PPR	5000 PPR	5000 PPR
Output circuit	NPN, PNP, 1Vpp, Push-Pull, Line Driver, Universal circuit	Push-Pull Line Driver Universal circuit	Push-Pull Line Driver Universal circuit
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc
Shaft diameter max.	hollow shaft Ø 15 mm	hollow shaft Ø 15 mm	hollow shaft Ø 15 mm
Electrical connections	cable M12, M23 connector	cable M12, M23 connector	cable M12, M23 connector
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	12000 rpm	6000 rpm	6000 rpm
Protection max.	IP65	IP65	IP65
Application		Motor feedback	Motor feedback

ROTACOD

Absolute rotary encoders

Compact absolute encoders size Ø36 mm

- High resolution optical sensing
- Cost-effective and robust magnetic encoders
- Solid or blind hollow shaft



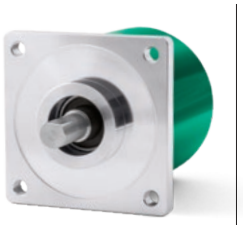
	 MS40 • MSC40 MS41 • MSC41	 MS36 • MSC36 MM36 • MMC36	 AS36 • ASC36 AM36 • AMC36	 EHM36 • EHO36
Description	• Size 40 mm • Solid or blind hollow shaft	• Size 36, single and multiturn • Solid or /blind hollow shaft	• Size 36, singleturn and optical multiturn • High performance and resolution	• Size 36, miniature optical & magnetic multiturn • Resolution up to 24 bit • Energy Harvesting Technology
Sensing method	magnetic	magnetic	optical	optical, magnetic
Housing diameter	40 mm	36 mm	36 mm	36 mm
Resolution max.	SSI: 12 Bit Bit parallel: 8 Bit Analogue: 10 Bit	13 Bit 13 x 16 Bit	20 Bit 20 x 12 Bit	20 x 16 Bit
Output circuit	NPN, PNP, SSI, 0-5V, 0-10V, 4-20 mA	SSI	BiSS-C / SSI	BiSS-C / SSI
Power supply	+5Vdc ±5%, +7÷30Vdc +10÷30Vdc, +15÷30Vdc	+10÷30Vdc	+5Vdc +10÷30Vdc +5Vdc÷30Vdc	+5÷30Vdc
Shaft diameter max.	solid shaft Ø 6 mm hollow shaft Ø 6 mm	solid shaft Ø 6 mm hollow shaft Ø 6 mm	solid shaft Ø 6 mm hollow shaft Ø 6 mm	solid shaft Ø 6 mm hollow shaft Ø 6 mm
Electrical connections	cable M12 connector	cable M12 connector	cable M12 connector	cable M12 connector
Operating temperature max.	-20°C +85°C (-4°F +185°F)	-25°C +85°C (-13°F +185°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	6000 rpm	6000 rpm
Protection max.	IP66	IP67	IP67	IP67
Application			Servomotors Feedback	

ROTACOD

Absolute rotary encoders

Absolute encoders for industrial applications

- Resolution up to 18 bit per turn
- SSI, bit parallel and analogue output
- Solid, blind and through hollow shaft

	 EHM58 • EHM58S • EHMC58	 ES58 • EM58	 AST6 • AMT6	 AS58 A • AM58 A
Description	• Size 58, single and multiturn • Energy Harvesting Technology • Solid or blind hollow shaft	• Size 58, single and multiturn • Servo or clamp flange • Solid or blind hollow shaft	• Square flange US/Imperial sizes • Absolute single/ multiturn • M23 and MIL connectors	• Size 58 mm • Single/multiturn • Analogue output • Solid/blind hollow shaft
Sensing method	magnetic	magnetic/optical	magnetic/optical	optical
Housing diameter	58 mm	58 mm	65 mm	58 mm
Resolution max.	18 Bit 18 + 16 Bit	13 Bit 13 x 14 Bit	18 Bit 16 x 14 Bit	12 Bit tot. 16 Bit
Output circuit	SSI BiSS-C	SSI Bit Parallel	SSI Bit parallel	0-5V, 0-10V, +/-5V, +/-10V, 0-20mA, 4-20mA, 0-24mA
Power supply	+5Vdc÷30Vdc	+5Vdc +10÷30Vdc	+5Vdc +10÷30Vdc	+13÷30Vdc
Shaft diameter max.	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm
Electrical connections	cable M12, M23 connector	cable M12, M23, MIL connector	cable M23, MIL connector	cable M12, M23 connector
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	6000 rpm	12000 rpm
Protection max.	IP67	IP67	IP66	IP67
Application				Precise analog output

ROTACOD

Absolute rotary encoders

Absolute encoders for demanding applications

- Precise optical sensing with accuracy up to ±0,007°
- Resolution up to 20 bit per turn
- Solid, blind hollow and through hollow shaft

	 EHO58 • EHO58S • EHOC58	 HS58 • HM58	 HSCT • HMCT
Description	• Size 58, multiturn • Energy Harvesting Technology • Solid or blind hollow shaft	• Single/multiturn, high resolution • Servo or clamp flange • Solid/blind hollow shaft	• Size 58 • Through hollow shaft • Single/multiturn • High resolution
Sensing method	magnetic/optical	optical	optical
Housing diameter	58 mm	58 mm	58 mm
Resolution max.	25 + 16 Bit	20 Bit + 2048 PPR 16 x 14 Bit + 2048 PPR	20 Bit (+2048 PPR) 16 x 12 Bit (+2048 PPR)
Output circuit	SSI BiSS-C	SSI, SSI+1Vpp, SSI + Line Driver 5V, SSI+Push-Pull, BiSS + 1Vpp	SSI, SSI+1Vpp, SSI+Push-Pull, SSI+Line Driver 5V, BiSS+1Vpp
Power supply	+5Vdc÷30Vdc	+5Vdc +10÷30Vdc	+5Vdc +10÷30Vdc
Shaft diameter max.	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	hollow shaft Ø 15 mm
Electrical connections	cable M12, M23 connector	cable M12, M23 connector	cable M12, M23 connector
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	6000 rpm
Protection max.	IP67	IP67	IP65
Application			

ROTAPULS

Incremental rotary encoders

Programmable incremental encoders
Programmable resolution up to 65536 PPR

- Universal output circuit PP/LD and configurable Line Driver 24/5V output
- Push button for index position setting
- Configurable via programming tool

	 IQ36 • CKQ36	 IQ58 • IQ58S • CKQ58	 IP58 • IP58S • CKP58
Description	• Size 36 • Solid or blind hollow shaft • Compact and robust	• Size 58 • Solid or blind hollow shaft • Universal output circuit	• Size 58 • Solid or blind hollow shaft • Resolution up to 65536 PPR • Zero setting push button • Diagnostic LEDs
Sensing method	magnetic	magnetic	optical
Housing diameter	36 mm	58 mm	58 mm
Resolution max.	from 1 to 16384 PPR	from 1 to 16384 PPR	from 1 to 65536 PPR
Programmable features	• resolution • counting direction • Index position • Index dimension • max. frequency	• resolution • counting direction • Index position • Index dimension • max. frequency	• resolution • counting direction • Index position • Index dimension • output circuit • max. RPM
Output circuit	Universal circuit	Universal circuit	Universal circuit 24/5V programmable
Power supply	+5÷30Vdc	+5÷30Vdc	+5÷30Vdc
Shaft diameter max.	solid shaft Ø 6 mm hollow shaft Ø 6 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm
Electrical connections	cable M12 connector	cable M12, M23 connector	cable M12, M23 connector
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	12000 rpm
Protection max.	IP69K	IP65	IP65

ROTACOD
Absolute encoders

Programmable absolute encoders

- SSI, bit parallel output with up to 18 bit per turn resolution
- Configurable analogue current and voltage output
- Programmable digital outputs and cam switches

	 HM58 P • HMC58 P	 EM58 PA • EMC58 PA	 EM58 TI/TV • EMC58 TI/TV	 ASR58 • AMR58
Description	• Absolute, multiturn • Solid/blind hollow shaft • Teach-in function	• Absolute multiturn • Analogue output freely programmable • Solid/blind hollow shaft	• Absolute multiturn • Analogue range setting by push buttons • Solid/blind hollow shaft	• Absolute single or multiturn • Integrated cams programmer • Solid/blind hollow shaft
Sensing method	optical	optical	magnetic/optical	optical
Housing diameter	58 mm	58 mm	58 mm	58 mm
Resolution max.	18 x 14 Bit	12 x 14 Bit	12 x 14 Bit	12 Bit 12 x 8 Bit
Programmable features	• resolution • teach-in of resolution • SSI protocol • output code • preset	• output current or voltage • counting direction • programmable resolution • preset • over-run function	• teach-in by push buttons • over-run function	16 programs, up to 1920 electronic cams
Output circuit	SSI Bit parallel	Programmable current or voltage	0-5V, 0-10V, +/-5V, +/-10V, 0-20mA, 4-20mA, 0-24mA	16 x Push-Pull + analogue + SSI
Power supply	+10÷30Vdc	+13÷30Vdc	+13÷30Vdc	+10÷30Vdc
Shaft diameter max.	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm
Electrical connections	cable, M12, M23, MIL, DSub connector	cable M12, M23 connector	cable M12 connector	cable MIL, DSub connector
Operating temperature	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	12000 rpm	6000 rpm
Protection max.	IP67	IP67	IP67	IP65

ROTACOD

Absolute rotary encoders

Absolute encoders with Ethernet & fieldbus interfaces

- Standard version with magnetic-optical sensing
- High accuracy singleturn with 18 bit resolution
- High performance optical multiturn

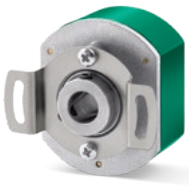
				
	EXO58 • EXM58	AS58/AM58 PB • AS58/AM58 CB	HS58 FB • HM58 FB	AS58 CB • AM58 CB
Description	• Ethernet interfaces • Axial connector output • Solid and hollow shaft • Energy Harvesting	• Absolute single & multiturn • Profibus and CANopen interface • Solid/blind hollow shaft	• High performance single/multiturn • Flexible bus interface • Solid/blind hollow shaft	• Absolute single & multiturn • Point-to-point CANopen connection • Solid/blind hollow shaft
Sensing method	magnetic/optical	magnetic/optical	optical	magnetic/optical
Housing diameter	58 mm	58 mm	58 mm	58 mm
Resolution max.	EXO: 16 x 14 Bit EXM: 18 x 12 Bit	13 Bit 13 x 12 Bit	18 Bit 16 x 14 Bit	18 Bit 16 x 14 Bit
Output circuit	CC-Link, EtherCAT, Profinet, POWERLINK, Ethernet/IP, Modbus TCP	CANopen Profibus-DP	CANopen, CANopen LIFT, Profibus-DP, DeviceNet	CANopen
Power supply	+5÷30Vdc	+10÷30Vdc	+10÷30Vdc	+10÷30Vdc
Shaft diameter max.	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm
Electrical connections	axial M12 connectors	connection cap with PGs or M12 connectors	connection cap with PGs or M12 connectors	cable or M12 connector
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	6000 rpm	6000 rpm	6000 rpm	6000 rpm
Protection max.	IP65	IP65	IP65	IP67
Application			High performance fieldbus	Off road vehicles

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

Encoders for motor feedback applications
Versions for asynchronous and synchronous motors

- Hollow shaft or tapered shaft
- Digital and sine/cosine commutation signals

	new  C50 • C50MI • C50MA	 CB50	 CB59 • CB60	 ASB62 • CB62
Description	• Size 50, compact • Through hollow shaft • Extended operating temperature	• Size 50 • UVW commutation signals • Through hollow shaft	• Hollow or tapered shaft • Sin/cos output with absolute CD track	• Tapered shaft • Expansion fixing plate • Sin/cos output with absolute CD track • BiSS-C/SSI
Sensing method	optical, magnetic	optical	optical	optical
Housing diameter	50 mm	50 mm	58 mm	58 mm
Resolution max.	8192 PPR 65536 PPR 19 x 16 Bit	5000 PPR/8 poles	2048 PPR + CD track	25 Bit 2048 PPR + CD track
Output circuit	Push-Pull, Line Driver Universal circuit BiSS-C/SSI	Push-Pull, Line Driver	1Vpp	BiSS-C/SSI 1Vpp
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5%	+5Vdc ±5% +10÷30Vdc
Shaft diameter max.	hollow shaft Ø10 mm	hollow shaft Ø10 mm	hollow shaft Ø15 mm tapered shaft Ø1:10 mm	tapered shaft Ø1:10 mm
Electrical connections	cable	PCB connector + cable	PCB connector + cable	PCB connector + cable
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-20°C +100°C (-4°F +212°F)	-20°C +100°C (-4°F +212°F)	-30°C +100°C (-22°F +212°F)
Shaft rotational speed max.	6000 rpm	6000 rpm	12000 rpm	10000 rpm
Protection max.	IP65	IP20	IP40	IP40
Application	Electric motors	Brushless motors	Gearless motors Elevators	Gearless motors Elevators

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

Encoders for hoists and large motors

- Through hollow shaft diameter up to Ø50 mm
- Precise optical sensing
- Robust metal housing with flat design

	 C80	 C82	 ASC85
Description	• Size 80, low profile • Through hollow shaft up to Ø30 mm	• Size 80, low profile • Through hollow shaft up to Ø44 mm • Cable or connector output	• Size 87, absolute • 25 bit singleturn • Through hollow shaft Ø50 mm • High accuracy
Sensing method	optical	optical	optical
Housing diameter	80 mm	80 mm	87 mm
Resolution max.	4096 PPR	8192 PPR	25 Bit
Output circuit	Push-Pull Line Driver Universal circuit	Push-Pull Line Driver Universal circuit	BiSS-C + 4096 sin/cos SSI + 4096 sin/cos
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc
Shaft diameter max.	hollow shaft Ø30 mm	hollow shaft Ø44 mm	hollow shaft Ø50 mm
Electrical connections	cable M23 connector	cable M23 connector	cable M12 or M23 inline conn.
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	6000 rpm	3000 rpm	2000 rpm
Protection max.	IP65	IP65	IP65
Application	Gearmotors Hoists	Gearmotors Hoists	Motors Radars systems

ROTAMAG
Bearingless encoders

Bearingless encoders for integration into motors

- Compact absolute encoders for digital feedback on servomotors
- Frameless and precise optical sensing

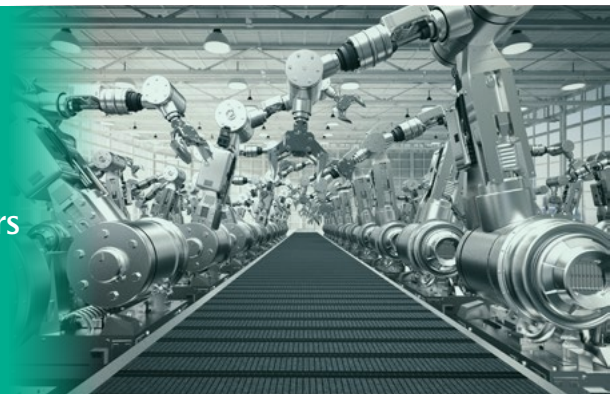
	new  AMM33	 AMM36	 AMM5B	 AMM80
Description	• Energy harvesting technology (no battery) • Singleturn up to 18 bit • Absolute multiturn up to 24 bit • Robust magnetic sensing	• Kit-encoder, size 35 • Absolute singleturn & multiturn • Electronic multiturn counter • Compact dimensions	• Absolute kit-encoder • Electronic multiturn counter • Hollow shaft up to Ø24mm	• Absolute kit-encoder • Electronic multiturn counter • Hollow shaft up to Ø45mm
Sensing method	magnetic	optical	optical	optical
Outer diameter	33 mm	35 mm	55 mm	80 mm
Resolution max.	multiturn: 18 x 24 Bit singleturn: 18 Bit	abs.: 22 x 16 Bit incr.: 256 PPR AB /AB	abs.: 23 x 16 Bit incr.: 512 PPR AB /AB	abs.: 23 x 16 Bit incr.: 1024 PPR AB /AB
Output circuit	BiSS-C SSI	BiSS-C + 1Vpp AB /AB SSI + 1Vpp AB /AB RS485	BiSS-C + 1Vpp AB /AB SSI + 1Vpp AB /AB RS485	BiSS-C + 1Vpp AB /AB SSI + 1Vpp AB /AB RS485
Power supply	+5Vdc ± 10%	+5Vdc ±5% Multiturn counter: 3-6Vdc	+5Vdc ±5% Multiturn counter: 3-5Vdc	+5Vdc ±5% Multiturn counter: 3-5Vdc
Shaft diameter max.	-	hollow shaft Ø6 mm	hollow shaft Ø24 mm	hollow shaft Ø45 mm
Electrical connections	PCB connector	PCB connector	PCB connector	PCB connector
Operating temperature max.	-40°C +115°C (-40°F +239°F)	-25°C +85°C (-13°F +185°F)	-25°C +115°C (-13°F +239°F)	-25°C +115°C (-13°F +239°F)
Shaft rotational speed max.	12000 rpm	10000 rpm	10000 rpm	10000 rpm
Protection	IP00	IP00	IP00	IP00
Application	Robotics Electromedical devices	Robotics Servo motors	Robotics Servo motors	Robotics Servo motors

ROTAMAG

Bearingless encoders

Bearingless encoders for integration into motors

- Incremental encoders for spindle and high-speed motors
- Compact absolute encoders for digital feedback on servomotors



	AMM8A	SMAR4	SMAR1	SMG
		new 		
Description	• Absolute multiturn kit-encoder • Through hollow shaft • Low profile	• Ultra flat Kit-encoder • Absolute magnetic sensing • BiSS-C, SSI interfaces	• Ultra flat kit-encoder • Absolute magnetic sensing • Axial or radial connector output	• Gear sensor • High resolution and precision • High counting frequency
Sensing method	optical	magnetic	magnetic	magnetic
Outer diameter	96 mm	ring: 34 mm	PCB: 47 mm ring: 34 mm	-
Resolution max.	abs.: 21 x 12 Bit incr.: 1024 PPR AB /AB	19 Bit	abs.: 19 Bit incr.: 65536 PPR + 32 poles	>25000 PPR
Output circuit	BiSS-C + 1Vpp AB /AB SSI +1Vpp AB /AB	BiSS-C SSI	BiSS-C, SSI, SPI Line Driver	Push-Pull, Line Driver 1Vpp
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ± 5%	+5Vdc ±5%	+5Vdc ±5%
Shaft diameter max.	hollow shaft Ø25 mm	Ø15 mm	hollow shaft Ø18 mm	depending on measurement target
Electrical connections	PCB connector	PCB connector	PCB connector	cable M12 plug
Operating temperature max.	-25°C +105°C (-13°F +221°F)	-25°C +100°C (-13°F +212°F)	-25°C +110°C (-13°F +230°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	6000 rpm	32000 rpm	10000 rpm	-
Protection max.	IP00	IP00	IP00	IP68
Application	Robotics Servo motors	Cobots, drones Servo motors	Robotics Servo motors	High speed spindle motors

ROTAMAG
Bearingless encoders

Magnetic bearingless encoders

- Robust magnetic sensing with protection up to IP69K
- Hollow shaft diameter up to Ø250 mm
- Resolution 180000 pulses/turn or more

	 MIK36 • MSK36 • MMK36	 SGSM • SGSD	 SMRI2 • SMRI5
Description	• Size 36, with hub-shaft • Incremental and absolute	• Magnetic encoder • Single or redundant version • High environmental protection	• Magnetic ring encoders with several diameters • Resolutions up to 180000 PPR or more
Sensing method	magnetic	magnetic	magnetic
Resolution max.	2048 PPR 13 Bit 13 x 16 Bit	1024 PPR	180000 PPR
Output circuit	Line Driver, NPN, Push-Pull 1Vpp SSI	Push-Pull Line Driver	Push-Pull Line Driver
Power supply	+5Vdc +10÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc
Shaft diameter max.	hollow shaft Ø10 mm	hollow shaft Ø50 mm	hollow shaft Ø250 mm
Electrical connections	cable M12 connector	cable	cable M12 connector
Operating temperature max.	-20°C +85°C (-4°F +185°F)	-40°C +85°C (-40°F +185°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	30000 rpm	6000 rpm	25000 rpm
Protection max.	IP68	IP68	IP67
Application	Contactless sensing Washdown	Contactless sensing Washdown	Torque motors

ROTAMAG
Bearingless encoders

Magnetic bearingless encoders and arc-encoders

- Contactless and wearless magnetic sensing
- Hollow shaft up to Ø280 mm or on request
- Resolution up to 262144 counts/turn or more

	 SMRA2	 SMRA2	 SMAB	 SMLAX
Description	• Absolute bearingless • Self-centering clamp ring	• Absolute sensing of arcs and segments	• Low profile absolute encoder • Axial sensing	• Magnetic ring encoder • Absolute & incremental position • IP68 protection
Sensing method	magnetic	magnetic	magnetic	magnetic
Resolution max.	14 Bit	0,29 µm	18 Bit	14 Bit
Output circuit	SSI BiSS-C	SSI BiSS-C	SSI	SSI Push-Pull, Line Driver
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5%	+10÷30Vdc	+5Vdc ±5% +10÷30Vdc
Shaft diameter max.	hollow shaft Ø110 mm	any radius	hollow shaft Ø80 mm	Ø280 mm max. ring dimensions on request
Electrical connections	cable M12 connector	cable M12 connector	cable	cable
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-10°C +85°C (14°F +185°F)
Shaft rotational speed max.	15000 rpm	-	15000 rpm	-
Protection max.	IP68	IP67	IP69K	IP68
Application	Torque motors	Robotics	Robotics	Motors, generators ATEX

For more information, see also SMLAX on page 24

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

Encoders with ATEX certification

- Size Ø58 mm with solid and hollow shaft
- Ø58 and Ø77 mm suitable for use in zones 1, 2, 21, 22
- Absolute encoders with SSI and programmable analogue output
- Integrated fieldbus interface

	 IX58 • CX58	 XC77	 XAC77	 XAC77
Description	• ATEX for zones 2, 22 • Incremental, size 58 • Solid/blind hollow shaft	• ATEX zones 1, 2, 21, 22 • Incremental version • Heavy-duty structure	• ATEX zones 1, 2, 21, 22 • Absolute version • Heavy-duty structure	• ATEX zones 1, 2, 21, 22 • Fieldbus version • Heavy-duty structure
Sensing method	optical	optical	optical	optical
Housing diameter	58 mm	77 mm	77 mm	77 mm
Resolution max.	10000 PPR	10000 PPR	13 Bit 13 x 14 Bit	16 x 14 Bit
Output circuit	NPN, PNP, Push-Pull, 1 Vpp, Line Driver, Universal circuit	NPN, Push-Pull, Line Driver, Universal circuit	SSI Bit parallel Analogue V/I Programmable cams	Profibus, CANopen, DeviceNet, Profinet, EtherCAT, Powerlink, EtherNet/IP, Modbus/TCP
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+10÷30Vdc	+10÷30Vdc
Shaft diameter max.	solid shaft Ø12 mm hollow shaft Ø15 mm	hollow shaft Ø14 mm	hollow shaft Ø14 mm	hollow shaft Ø14 mm
Electrical connections	cable	cable	cable	cable
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-20°C +40°C (-4°F + 104°F)	-20°C +40°C (-4°F + 104°F)	-20°C +40°C (-4°F +104°F)
Shaft rotational speed max.	12000 rpm	6000 rpm	6000 rpm	6000 rpm
Protection max.	IP65	IP65	IP65	IP65
Application	ATEX	ATEX	ATEX	ATEX

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

Encoders with stainless-steel housing

- High resistance to environmental agents
- Incremental version, resolution up to 10000 PPR
- Absolute single and multiturn with SSI and fieldbus interface

	 MI36K • MC36K	 I58SK	 ES58K • EM58K	 AM58K
Description	• Size 36, compact and robust housing • Solid/blind hollow shaft • Sealed circuits (option)	• Size 58 • Clamp flange • High environmental protection	• Size 58 • Solid/blind hollow shaft	• Size 58 • Clamp flange • Fieldbus interface
Sensing method	magnetic	optical	magnetic/optical	magnetic/optical
Housing diameter	36 mm	58 mm	58 mm	58 mm
Resolution max.	2048 PPR	10000 PPR	13 Bit	13 x 12 Bit
Output circuit	NPN Push-Pull Line Driver	NPN, Push-Pull, 1Vpp, Line Driver, Universal circuit	SSI Bit Parallel Push-Pull Bit Parallel NPN	Profibus CANopen
Power supply	+5Vdc±5% +10÷30Vdc	+5Vdc±5% +10÷30Vdc +5÷30Vdc	+7,5÷34Vdc	+10÷30Vdc
Shaft diameter max.	solid shaft Ø6 mm hollow shaft Ø6 mm	solid shaft Ø12 mm	solid shaft Ø12 mm	solid shaft Ø12 mm
Electrical connections	cable	cable M23 connector	cable M12, M23 connector	M12 connector cap
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	12000 rpm	6000 rpm	12000 rpm	6000 rpm
Protection max.	IP67	IP67	IP67	IP67
Application	Food machinery Marine environment	Food machinery Marine environment	Food machinery Marine environment	Food machinery Marine environment

ROTAPULS

Incremental rotary encoders

Heavy-duty encoders
Mechanical and environmental durability

- Twin encoders and redundant versions
- Power output drivers for long cable transmissions
- Resistant against salt spray and seawater environment

	 C100	 C101	 I115	 I116
Description	• Blind hollow and blind tapered shaft • Connections with terminal block • Electrically isolated shaft	• Blind hollow and blind tapered shaft • Connections with terminal block • Electrically isolated shaft	• Euro flange • Connections with terminal block	• Euro flange • Redundant version • Connections with terminal block
Sensing method	optical	optical	optical	optical
Housing diameter	100 mm	100 mm	115 mm	115 mm
Resolution max.	2500 PPR	2048 PPR	5000 PPR	2500 PPR
Output circuit	Power Push-Pull Power Line Driver	Power Push-Pull Power Line Driver	NPN, Push-Pull Line Driver Universal circuit Power Push-Pull	NPN, Push-Pull, Line Driver, Universal circuit, Power Push-Pull
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+5Vdc ±5% +10÷30Vdc +5÷30Vdc
Shaft diameter max.	hollow shaft Ø16 mm tapered shaft Ø17 mm	hollow shaft Ø16 mm tapered shaft Ø17 mm	solid shaft Ø11 mm	solid shaft Ø11 mm
Electrical connections	cable, terminal block, M23 connector	terminal block 2 x M23 connector	terminal block	terminal block
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	6000 rpm max.	6000 rpm max.	6000 rpm max.	6000 rpm max.
Protection max.	IP65	IP54	IP66	IP66
Application	Wind turbines, Off-shore Steel mills	Wind turbines, Off-shore Steel mills	Steel mills Big size motors	Steel mills Big size motors

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

Heavy-duty encoders
Mechanical and environmental durability

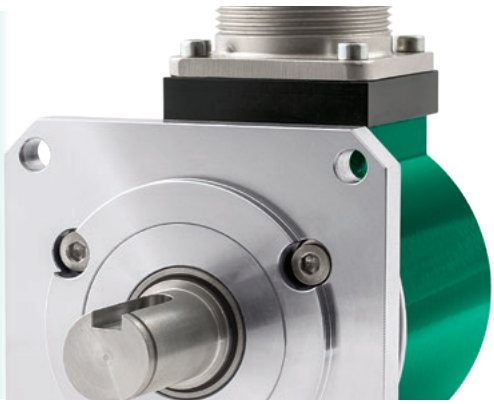
- Incremental encoders with spring-loaded shaft
- Absolute encoders with standard or fieldbus interface
- Resistant to salt spray and seawater environment

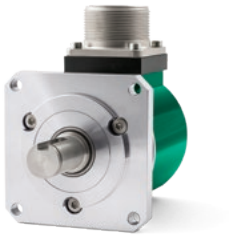
	 ICS	 XAC80 • XAC81	 SMRIL	 SMLAX
Description	• Robust housing with high protection • Spring loaded (mobile) shaft	• Magnetic encoder • Low profile • Heavy-duty connector • ATEX for zones 2, 22	• Resolution up to 8192 PPR • Non contact magnetic sensing • Sensor/ring clearance up to 1,5 mm	• Magnetic ring encoder • Absolute & incremental position • IP68 protection
Sensing method	optical	optical	magnetic	magnetic
Housing diameter	172 x 80 x 53 mm	77 mm	-	-
Resolution max.	2500 PPR	18 Bit 16 x 14 Bit	8192 PPR	14 Bit
Output circuit	NPN, PNP, Push-Pull, Line Driver, Universal circuit	Profibus, Profinet CANopen, EtherNet/IP DeviceNet, EtherCAT Modbus	Push-Pull, Line Driver	SSI +1024 PPR incremental SSI Push-Pull, Line Driver
Power supply	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+10÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc
Shaft diameter max.	solid shaft Ø12 mm	hollow shaft Ø14 mm	Ø30 or Ø50 mm	Ø230 mm
Electrical connections	MIL connector	connection cap with PGs connection cap with M12	M12 connector cable	cable
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-10°C +85°C (+14°F +185°F)
Shaft rotational speed max.	6000 rpm	6000 rpm	40000 rpm	-
Protection max.	IP67	IP66	IP67	IP68
Application	Linear measures on rack			Motors, generators ATEX

ROTAPULS

Incremental rotary encoders

Specialty encoders and unconventional designs



	 CH59	 IT68	 IR01
Description	• Size 58, low profile • 204800 pulses/revolution	• Square flange, Japanese standard • Robust design • Extended operating temperature	• Wheel-encoder for conveyors • Metric and inches sizes • Fixing kit with springs
Sensing method	optical	optical	optical
Housing diameter	58 mm	65 mm	-
Resolution max.	204800 PPR	10000 PPR	5000 PPR
Output circuit	Line Driver RS422	NPN, PNP, Push-Pull, Line Driver, Universal circuit	NPN Push-Pull Universal circuit
Power supply	+5Vdc ±5%	+5Vdc ±5% +10÷30Vdc +5÷30Vdc	+10÷30Vdc +5÷30Vdc
Shaft diameter max.	through hollow shaft Ø12 mm	solid shaft Ø15 mm	-
Electrical connections	cable	cable MIL connector	M12 connector
Operating temperature	-25°C +85°C (-13°F +185°F)	-40°C +100°C (-40°F +212°F)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed	6000 rpm max	6000 rpm	2000 rpm max.
Protection max.	IP42	IP66	IP65
Application	Electromedical	Machine tools	Conveyors, logistics

TILTCOD
Inclinometers

Inclinometers with analogue output, CANopen and Modbus RTU interfaces

	IXA	new IXB • IXM	new IXC • IXM
			
Description	• Analogue A or V output • Single and 2 axes versions • Reduntant version available	• CANopen and Modbus RTU interfaces • One or 2 axes configurable • High accuracy	• CANopen and Modbus RTU interfaces • One or 2 axes • Anti-vibration filter
Measuring range (1 axis)	0...360°	±180° / 0°...360°	±180°
Measuring range (2 axes)	±10° ±30° ±60°	±5... ±60°	±5... ±60°
Interface	Analogue output	CANopen, Modbus RTU	CANopen, Modbus RTU
Resolution	0,05%	programmable from 1.0 to 0,001°	programmable from 1.0 to 0,001°
Accuracy	±0,2° max.	±0,05° max.	±0,2° max.
Power supply	+7Vdc +30Vdc	IXB: +7Vdc +40Vdc IXM: +10÷30Vdc	IXB: +7Vdc +40Vdc IXM: +10÷30Vdc
Electrical connections	cable M12 connector	M12 connector	M12 connector
Operating temperature	-40°C +85°C (-40°F +185°F)	-40°C +85°C (-40°F +185°F)	-40°C +85°C (-40°F +185°F)
Housing material	die-cast aluminium	die-cast aluminium	die-cast aluminium
Protection	IP67	IP67	IP67
Application	Off-road	Off-road	Off-road

ACCESSORIES

Accessories for rotary & linear encoders

Couplings

Comprehensive range of couplings specific for encoders and motors

- Flexible or rigid
- Zero backlash
- Electrically insulated
- Vibration absorbing
- High torque
- Grub screw or collar fixing
- Versions with keyway
- Stainless steel versions

Mounting and connection accessories

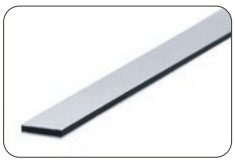
Various types of supports, mounting bells and flanges are available to meet any fixing need

- Spring loaded brackets
- Mounting bells
- Adapter flanges
- Fixing clamps
- Connectors
- Cordset

Metric wheels

Circumference 200 or 500 mm

- Aluminium or rubber surface
- Metric wheel encoder (IR65 series)
- Rack and pinions



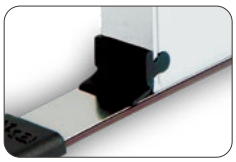
Standard incremental magnetic tapes **MTI** available for lengths up to 100 m.

Standard absolute magnetic tapes **MTA** available for lengths up to 32 m.

Tape terminals for magnetic tapes.

KIT-LKM1440 for 10 mm wide magnetic tape.

KIT-LKM1439 for 20 mm wide magnetic tape.
(each set contains 10 pieces with mounting screws).



Cleaning wipers
Wipers for SMExx/SMSxx series.

KIT WIPERS contains 10 pieces.

DRAW-WIRE

Draw-wire encoders

Draw-wire encoders with measuring length up to 10 m

- Potentiometer, incremental and programmable incremental output
- Resolution down to 0,01 mm
- Compact all-metal housing

	 SFPS1	 SFES1	 SFEM1	 SFEM2
Description	• Draw wire potentiometer • Current or Ohm output	• Draw wire encoder • Incremental, compact	• Incremental, 5 m range • Programmable resolution • Robust and compact	• Incremental, 10 m range • Programmable resolution • Robust and compact
Output circuit	0-10V 4-20mA 1, 5, 10, 20 Ω	Universal circuit	Universal circuit	Universal circuit
Resolution		0,2 mm	0,01 mm	0,01 mm
Measuring length max.	2000 mm	2000 mm	5000 mm	10000 mm
Linearity	± 0,25%		± 0,5 mm	± 0,5 mm
Measuring speed max.	1 (m/sec)	1 (m/sec)	2 (m/sec)	2 (m/sec)
Power supply	+15÷30Vdc +10÷30Vdc	+5÷30Vdc	+5÷30Vdc	+5÷30Vdc
Electrical connections	cable	cable	cable M12 or M23 connector	cable M12 or M23 connector
Operating temperature	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-40°C +85°C (-40°F +185°F)	-40°C +85°C (-40°F +185°F)
Protection max.	IP64	IP64	IP65	IP65
Housing size	56 x 56 x 79 mm	56 x 56 x 64 mm	125 x 101 x 81 mm	125 x 101 x 112 mm
Application		Electromedical		

DRAW-WIRE

Draw-wire encoders

Draw-wire encoders up to 10 m
Linear absolute measurement

- Output interface SSI or fieldbus
- Analogue output with Teach-in function

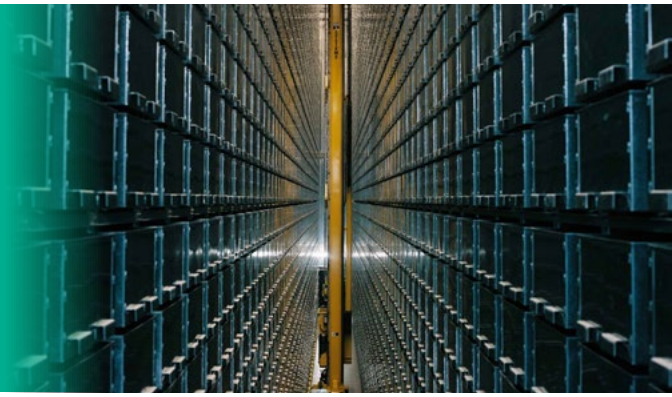
	 SFAS1	 SFAM1 • SFAM2	 SFAM1 TI/TV • SMAM2 TI/TV	 SFAM1 FB • SFAM2 FB
Description	• Absolute draw wire encoder • Compact housing	• Absolute, 5 or 10 m range • Robust housing	• Settable analogue output • Teach-in with external push buttons • 5 or 10 m range	• Fieldbus and Ethernet interfaces • 5 or 10 m range
Output circuit / Interface	SSI	SSI	0-5V 0-10V 4-20mA	Profibus-DP, CANopen, Devicenet, EtherCAT, Powerlink, Profinet, Modbus/TCP, EtherNet/IP
Resolution	0,012 mm	0,024 mm	programmable	0,024 mm
Measuring length max.	2000 mm	10000 mm	10000 mm	10000 mm
Linearity		± 0,5 mm	± 0,5 mm	± 0,5 mm
Measuring speed max.	1 m/sec	2 m/sec	2 m/sec	2 m/sec
Power supply	+10÷30Vdc	+10÷30Vdc	+13÷30Vdc	+10÷30Vdc
Electrical connections	cable M12 connector	cable M12, M23 connector	cable M12 connector	M12 connectors or PGs
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-40°C +85°C (-40°F +185°F)	-40°C +85°C (-40°F +185°F)	-40°C +85°C (-40°F +185°F)
Protection max.	IP64	IP65	IP65	IP65
Housing size	56 x 56 x 79 mm	125 x 101 x 81 mm 125 x 101 x 112 mm	125 x 101 x 81 mm 125 x 101 x 107 mm	125 x 101 x 104 mm 125 x 101 x 135 mm
Application	Electromedical			

DRAW-WIRE

Draw-wire encoders

Draw-wire units for encoders Flexibility in combination with common encoder types

- Measuring range up to 50 m

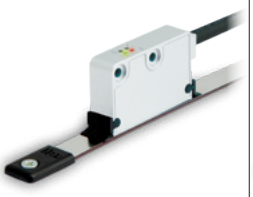
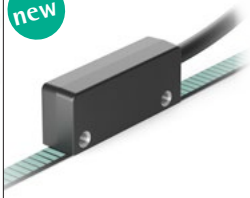


	 SF0M1	 SF0M2	 SAK	 SBK
Description	• Draw-wire units for incremental encoders • 5 or 6,8 m measuring length • For blind hollow shaft encoders	• Draw-wire units for absolute encoders • 5 or 6,8 m measuring length • For blind hollow shaft encoders	• Draw-wire units for encoders • Measuring length up to 15 m • For servo flange encoders	• Draw-wire units for encoders • Measuring length up to 50 m • For servo flange encoders
Measuring length max.	6800 mm	6800 mm	15000 mm	50000 mm
Linearity			± 0,05% FS	± 0,05% FS
Measuring speed max.	3 m/sec	3 m/sec	10 m/sec	10 m/sec
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Protection max.	depends on the encoder model	depends on the encoder model	depends on the encoder model	depends on the encoder model
Housing size	125x83x58 mm	125x83x58 mm	135x128x181 mm 135x128x277 mm	200x190x392 mm 200x190x432 mm
Application			Automatic storage	Automatic storage

LINEPULS
Incremental linear encoders

Incremental linear encoders for position measurements

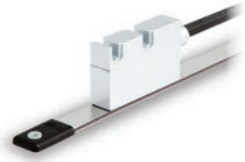
- Contactless and wearfree magnetic sensing
- Additional reference and limit switch outputs

	 SME51 • SME21 • SME11	 SME52 • SME22 • SME12	new  IKS9	 SME54
Description	• Resolution down to 80nm • Optional external reference mark	• Resolution down to 0,5 µm • With integral limit switch sensors	• High performance • Resolution down to 0,02 µm • Programmable	• High resolution down to 0,08 µm • Programmable version
Resolution max.	80 nm	1 µm	0,02 µm	0,08 µm
Gap sensor/tape	0,1 ÷ 2 mm	0,1 ÷ 2 mm	0,1 ÷ 2,5 mm	0,1 ÷ 2 mm
Travel speed	16 m/s	16 m/s	100 m/s	10 m/s
Output circuit	Push-Pull Line Driver	Push-Pull Line Driver	Push-Pull Line Driver	Push-Pull Line Driver
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +24V on request	+5Vdc ±5% +10÷30Vdc
Electrical connections	cable cable + M12 connector	cable	cable cable + connector	cable cable + M12 connector
Dimensions	40 x 25 x 10 mm	40 x 25 x 10 mm	35 x 14 x 9 mm	40 x 25 x 10 mm
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Protection max.	IP67	IP67	IP67	IP67
Application			Linear motors Torque motors	

LINEPULS
Incremental linear encoders

Incremental linear encoders for position measurements

- Contactless and wearfree magnetic sensing
- Unconventional designs

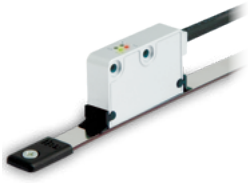
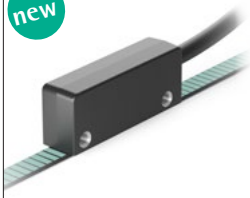
	 SMB2 • SMB5	 SMK • SML	 SMIG	 SMX2 • SMX5
Description	• Small reading head • External conversion circuitry	• Sensors for standard applications • Large mounting tolerances	• Guided encoder • Measuring length up to 570 mm	• Heavy-duty Hall sensor • Universal circuit • Position and speed measurement
Resolution max.	5 µm	10 µm	5 µm	1 mm
Gap sensor/tape	0,1 ÷ 2 mm	0,1 ÷ 4 mm	-	0,1 ÷ 3 mm
Travel speed	16 m/s	16 m/s	1 m/s	16 m/s
Output circuit	Push-Pull, Line Driver	Push-Pull, Line Driver	Push-Pull, Line Driver	Universal circuit
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +10÷30Vdc	+5÷30Vdc
Electrical connections	cable	cable cable + M12 connector	cable cable + M12 connector	cable
Dimensions	25 x 15 x 8,5 mm	40 x 25 x 10 mm	80 x 48 x 28 mm	M10 x 30 mm
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Protection max.	IP67	IP67	IP67	IP67
Application	Semiconductor machines Linear motors		Press brakes Bending machines	Speed measurement

LINEPULS

Incremental linear encoders

Linear encoders for motion control

- High quality incremental signals
- Square wave and Sine/Cosine outputs
- Additional reference and limit switch outputs

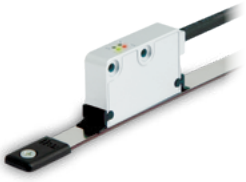
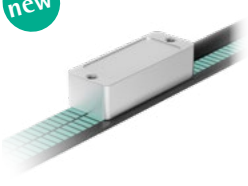
	 SMI2 • SMI5	 SMS11 • SMS12	new  IKS9	 SMSR • SMSR2 • SMSR5
Description	• Small reading head • External conversion circuitry	• 1Vpp sine/cosine output • Integral limit switch sensors • Reference signal	• High performance • Resolution down to 0,02 µm • Programmable	• Miniature reading head • External conversion circuitry
Resolution max.	2 µm	1000 µm	0,02 µm	1000 µm 2000 µm 5000 µm
Gap sensor/tape	0,1 ÷ 2 mm	0,1 ÷ 0,5 mm	0,1 ÷ 2,5 mm	0,1 ÷ 2 mm
Travel speed	16 m/s	16 m/s	100 m/s	16 m/s
Output circuit	Push-Pull Line Driver	1Vpp	Push-Pull Line Driver	1Vpp
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5%	+5Vdc ±5% +24V on request	+5Vdc ±5%
Electrical connections	cable + DSub connector	cable cable + M12 connector	cable cable + connector	cable cable + M12 connector
Dimensions	25 x 15 x 8,5 mm	40 x 25 x 10 mm	35 x 14 x 9 mm	25 x 15 x 8,5 mm
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Protection max.	IP68	IP67	IP67	IP68
Application	Semiconductor machines Linear motors	Linear motors Torque motors	Linear motors Torque motors	Semiconductor machines Linear motors

LINEPULS • LINECOD

Incremental linear encoders • Absolute linear encoders

Linear encoders for motion control

- High performance incremental versions with resolution down to 0,5µm
- Absolute encoders with BiSS/SSI and additional incremental track

		new 		new 
	SME11 • SME12	SMA3	SMA1	SMA2 • SMA21
Description	• High performance • Resolution down to 0,5µm • Integral limit switch sensor	• Ultra-compact reading head • Long measuring length up to 19,3 m • Fast position refresh	• Absolute encoder for feedback applications • Additional sine/cosine track	• Absolute encoder for digital feedback • High performance • Measuring length up to 32,7m
Resolution max.	0,5 µm	0,29 µm	5 µm	1 µm
Gap sensor/tape	0,1 ÷ 0,5 mm	2 mm ± 0,2 mm	0,1 ÷ 0,3 mm	0,1 ÷ 0,6 mm
Travel speed	16 m/s	>20 m/s	5 m/s	10 m/s
Output circuit	Push-Pull Line Driver	SSI + 1Vpp BiSS-C + 1Vpp	SSI + 1Vpp BiSS-B + 1Vpp BiSS-C + 1Vpp	SSI + incremental BiSS-C + incremental Panasonic RS485
Power supply	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5%	+5Vdc ±5% +10÷30Vdc	+5Vdc ±5% +5÷30Vdc
Electrical connections	cable cable + connector	cable cable + M12 connector	cable	cable cable + M12 connector
Dimensions	40 x 25 x 10 mm	38 x 16 x 10 mm	85 x 21 x 20 mm	62 x 25 x 14 mm 70 x 25 x 14 mm
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-40°C +85°C (-40°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Protection max.	IP67	IP67	IP67	IP67
Application	Linear motors Torque motors	Linear motors Torque motors	Linear motor feedback	Linear motor feedback

LINECOD
Absolute linear encoders

Absolute linear encoders for position measurements

- Contacless and wearfree magnetic sensing
- Easy installation and high degree of protection up to IP68

	 SMA5	new  SMA2 • SMA21	 SMAG	 SMAX • SMAZ
Description	• Resolution down to 5µm • SSI interface • Measuring length up to 5,1m	• Resolution down to 1µm • BiSS-C/SSI interface • Measuring length up to 32,7m	• Guided encoder • Measuring length up to 570 mm	• Heavy-duty sensor • IP68 protection • Low-cost for measuring ranges up to 1250 mm
Resolution max.	5 µm	1 µm	5 µm	100 µm
Gap sensor/tape	0,1 ÷ 1 mm	0,1 ÷ 0,6 mm	-	0,1 ÷ 2 mm
Travel speed	5 m/s	10 m/s	1 m/s	5 m/s
Output circuit	SSI	SSI + incremental BiSS-C + incremental Panasonic RS485	SSI CANopen	SSI Modbus/RS485 Analogue 4-20mA, 0-10V
Power supply	+10÷30Vdc	+5Vdc ±5% +5÷30Vdc	+10÷30Vdc	Modbus, SSI: +10÷30Vdc Analogue: +13÷30Vdc
Electrical connections	cable cable + M12 connector	cable cable + M12 connector	cable cable + M12 connector	cable cable + M12 connector
Dimensions	65 x 20 x 20 mm	62 x 25 x 14 mm 70 x 25 x 14 mm	80 x 48 x 28 (or 35) mm	81 x 40 x 22 mm
Operating temperature max.	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)	-25°C +85°C (-13°F +185°F)
Protection max.	IP67	IP67	IP67	IP68
Application		Linear motor feedback	Press brakes Bending machines	Off-road vehicles

DRIVECOD

Rotary actuators

Rotary actuators for format adjustment

- Integration of motor, drive, position controller and real absolute encoder
- Decentralised automation of positioning axes
- Ease of installation thanks to hollow shaft
- Network connectivity through Ethernet and fieldbus interfaces
- Available with integral hold brake

	 RD1A • RD12A	 RD5 • RD53	 RD4	new  RD7
Description	• RD12A version with integral motor brake • Jog buttons • Service interface	• Compact actuator • RD53 version with integral motor brake	• Reinforced mechanism • High torque rotary actuator up to 15Nm • Oil bath reduction gears	• Rotary brushless actuator • Wireless connection
Rated speed	240 rpm 120 rpm 60 rpm 32 rpm	60 rpm	94 rpm 63 rpm	60 ± 10 rpm
Nominal torque	1,2 Nm 2,5 Nm 5 Nm 9 Nm	5 Nm	10 Nm 15 Nm	0,8 Nm
Interface	Profibus-DP, CANopen, Modbus RTU, EtherCAT, Powerlink, Ethernet/IP, Profinet	Profibus-DP CANopen Modbus RTU	Profibus-DP CANopen Modbus RTU	RS485 CC-Link
Shaft diameter	hollow shaft Ø14 mm	hollow shaft Ø14 mm	hollow shaft Ø20 mm	hollow shaft Ø20 mm
Integral motor brake	RD12A series	RD53 series	-	-
Service interface	RS232	-	-	-
Power supply	+24Vdc ± 10%	+24Vdc ± 10%	+24Vdc ± 10%	+24Vdc ± 10%
Protection max.	IP54	IP54	IP54	IP65
Operating temperature	0°C +60°C (+32°F +140°F)	0°C +60°C (+32°F +140°F)	0°C +60°C (+32°F +140°F)	-5°C +55°C (23°F +131°F)

HMI touch-screen controller for DRIVECOD rotary actuators

LDT10 touch screen for RD rotary actuators allows to create a complete system for quick changeovers.

The operator interface is simple and intuitive, suitable to:

- connect up to 8 RD rotary actuators
- set the parameters of each actuator
- edit and save the recipes
- simultaneously start the changeover process in all actuators

Display	LCD 7", 16:9 format
Screen	resistive touch screen
Dimensions	205 x 151 x 33 mm
Power supply	+24Vdc
Protection	IP65 / NEMA4

POSICONTROL

Displays and interfaces

Position displays for magnetic sensors

- Battery powered displays for stand-alone applications
- Variety of display modes: linear, angular and inch
- RS232 and RS485 serial interfaces

	 LD120	 LD112	 LD111 • LD141	 LD140 • LD142
Description	• Display for magnetic sensors • RS485 interface • Backup battery input	• Compact battery display with magnetic sensor	• OEM version • Panel mounting	• Battery display • LD140 with pluggable sensor • LD142 with integral sensor
Functionality		Offset, preset, mm/inch, linear/angular	Offset, preset, mm/inch, linear/angular	Offset, preset, mm/inch, linear/angular
Display	LED 5 digit	LCD 6 digit	LCD 6 digit	LCD 6 digit
Interface	RS485	-	RS232 (LD141)	RS232
Power supply	+10Vdc +30Vdc	Battery	Battery	Battery
Dimensions	72 x 36 x 62 mm	72 x 48 x 31 mm	61 x 39 x 29 mm 87 x 61 x 39 mm	97 x 73 x 47 mm
Protection	IP60	IP60	IP00	IP60

POSICONTROL

Displays and interfaces

Position displays and counters

- Variety of display modes: linear, angular and inch
- Incremental and absolute encoder input
- Serial interface RS232 or RS485

	 LD200	 LD210	 LD220	 LD350/360 • LD355/365
Description	• Universal LED display • 8 digits display	• Multi-function unit for analogue sensors • Touchscreen and graphic display	• Multi-function unit for SSI absolute encoders • Touchscreen and graphic display	• Multi-function LCD display • Incremental input • Touchscreen & graphic display
Functionality	Offset value, Preset, mm/inch/fractional inch display, angular display mode (360°), limit switches.	Indicator for single, dual or cross calculated inputs. Totalization, tare, avarage filter. Sum/difference of inputs. Linearization function (24 points).	Absolute position indicator, master & slave mode, scaling, bit blanking, linearization (24 points).	Position indicator, counter, time or stopwatch display, speed display, linearization function (24 points), filtering, start/stop suppression, scaling.
Display	LED 8 digit	LCD 8 digit	LCD 8 digit	LCD 8 digit
Encoder input	AB0, AB0 /AB0 sin/cos 1Vpp SSI	2 inputs ±10V, 0-10V, 0-20mA or 4-20mA	SSI input up to 32 bits	LD350/360: AB LD355/365: AB /AB
Outputs	3 digital outputs	RS232, RS485, 4 digital outputs, 2 relais outputs, 1 analogue output	RS232, RS485, 4 digital outputs, 2 relais outputs, 1 analogue output	RS232, RS485, 4 digital outputs, 2 relais outputs, 1 analogue output
Power supply	24Vdc ± 20%	+18 +30Vdc 115/230 Vac ± 10%	+18 +30Vdc 115/230 Vac	+18 +30Vdc 115/230 Vac
Counting frequency max.	1 MHz	-		1 MHz
Dimensions	96 x 48 x 49 mm	96 x 48 x 105 mm	96 x 48 x 105 mm	96 x 48 x 105 mm
Protection	IP65 (front)	IP65 (front)	IP65 (front)	IP65 (front)

POSICONTROL

Displays and interfaces

Signal converters for incremental and absolute encoders

- High quality and speed of signal conversion
- Easy setup through DIP-switches and teach-in buttons
- Easy and comfortable DIN rail mounting

	 IF10	 IF20	 IF09	 IF40
Description	• Level converter • Signal splitter • Encoder distributor • Cross switcher	• Level converter • Signal amplifier	• Encoder splitter and signal distributor	• Incremental to analogue converter • RS232/RS485 interface
Functionality	Adjustable signal levels (in/out). Contactless switch-over.	Conversion of signal levels. Input/Output galvanically separated. UP/DOWN output.	Encoder signal splitter, signal level converter/ repeater.	Incremental to analogue conversion. Scaling. A + B linkage. Linearization of output.
Encoder input	2 inputs HTL or TTL / RS422	1 input HTL or TTL / RS422	1 input HTL or TTL / RS422	HTL or TTL / RS422
Serial interface / Outputs	2 outputs HTL or TTL / RS422	1 output HTL or TTL / RS422	2 outputs (cascadable) HTL or TTL / RS422	± 10 V 0-20 mA 4-20 mA
Power supply	+12 +30Vdc	+5 +30Vdc	+5Vdc +10 +30Vdc	+18 +30Vdc
Counting frequency	1 MHz	500 kHz	750 kHz	1 MHz
Electrical connections	terminal block	terminal blocks DSub connectors	terminal blocks DSub connectors	terminal blocks mini USB
Protection	IP20	IP20	IP20	IP20
Dimensions	102 x 102 x 23 mm	102 x 102 x 23 mm	85 x 90 x 50 mm	102 x 102 x 23 mm

POSICONTROL
Interfaces

Gateways & safety motion monitors

- Safety motion controller for standard sensors & encoders
- SSI to fieldbus gateways with robust housing
- Optical fibre modules for encoders

	 IF41 • IF42	 IF55	 IF60/IF61 • IF62/IF63
Description	• Signal converter • IF41: SSI to Analogue • IF42: SSI to Parallel or HTL/TTL to parallel	• Gateway for SSI encoders • Metal housing • High protection	• Fibre-optic transmitters • Incremental and SSI version
Functionality	SSI to analogue conversion. SSI to parallel conversion. Incremental to parallel conversion. Master or slave operation. Scaling and bit suppression.	SSI to bus/Ethernet converter. Position, scaling, counting direction, diagnostic.	Safe signal transmission up to 2000 m. Suitable for explosive areas and environments with extremely high electromagnetic fields.
Encoder input	SSI (up to 32 bit) HTL/TTL	SSI (up to 30 bit)	HTL or TTL / RS422 SSI
Serial interface / Outputs	Parallel Analogue RS232 RS485	EtherCAT, EtherNet/IP POWERLINK Profinet Modbus TCP Profibus, CANopen	HTL or TTL / RS422 SSI
Power supply	+18 +30Vdc	+10 +30Vdc	+5Vdc ±5% +10 +30Vdc
Counting frequency max.	1 MHz	-	1 MHz
Electrical connections	terminal blocks mini USB, DSub	M12 connectors	terminal blocks
Protection	IP20	IP65	IP40
Dimensions	102 x 102 x 23 mm	78 x 60 x 48 mm	111 x 93 x 19 mm

Notes

Global presence makes us close to our customers

- **Lika-Bogen factories & sales**

  Lika Electronic Srl
  Headquarters Italy

  Bogen Magnetics GmbH
  Headquarters Germany

  Lika South East Asia
  Factory Thailand

  Lika USA
  North America Sales

  Lika Electronic GmbH
  Germany sales

- **Global sales partners network**

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