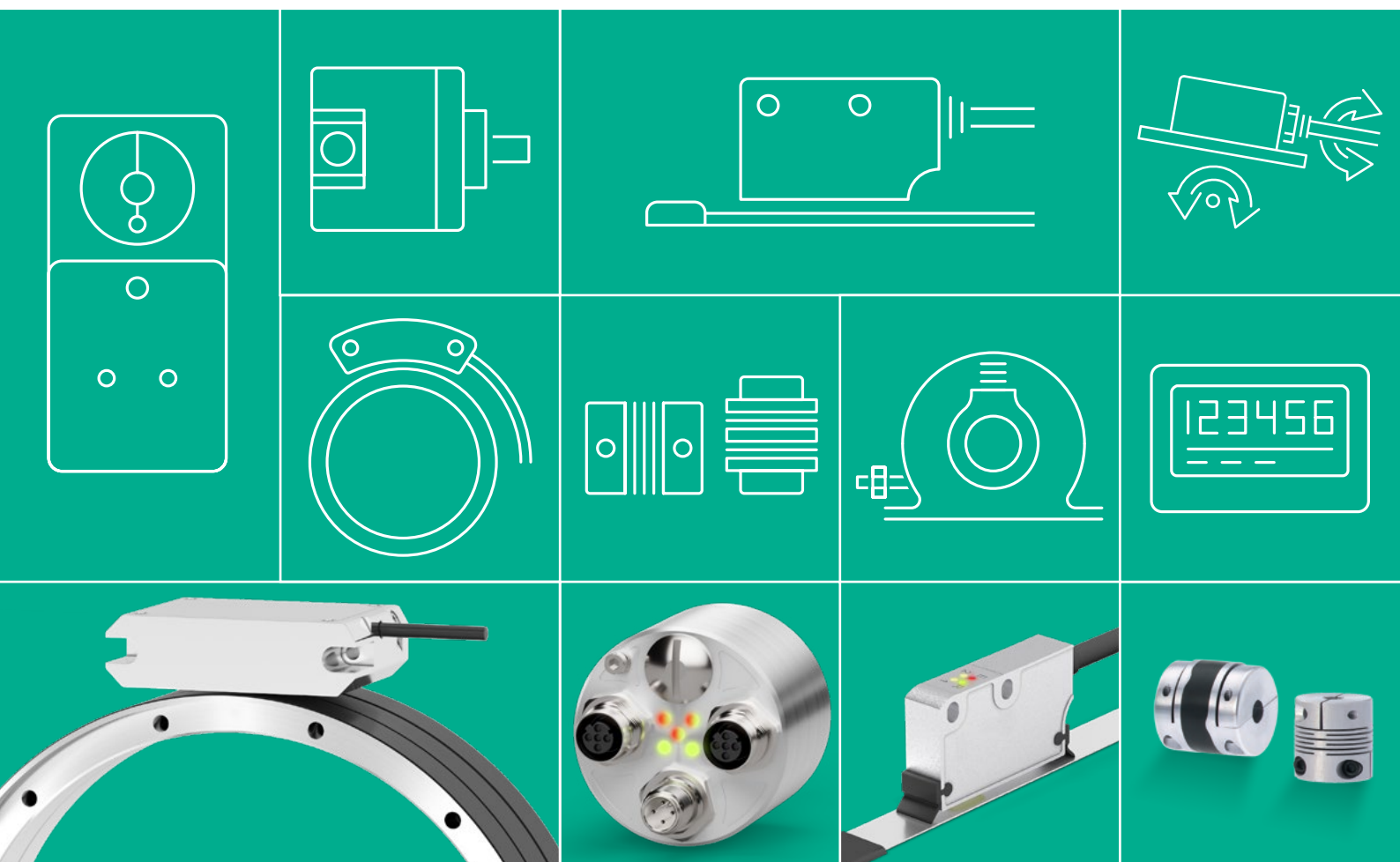




**40 YEARS
YOUNG**
1982.2022

lika[®]

Smart encoders & actuators



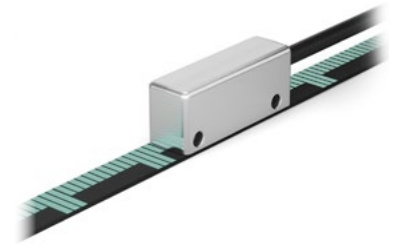
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ROTAPULS • ROTACOD
Rotary encoders



ROTAMAG
Magnetic encoders & Kit-encoders



LINEPULS • LINECOD
Linear encoders



DRAW-WIRE
Draw-wire encoders



COUPLINGS
Flexible & transmission couplings



TILTCOD
Inclinometers



DRIVECOD
Rotary actuators



POSICONTROL
Signal converters, Encoder Interfaces



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.

The Lika logo consists of the word "lika" in a bold, sans-serif font. The letter "i" is a teal color, while the letters "l", "k", "a", and the second "i" are black.The Lika Lab logo features the word "lika" in the same font as the main logo, with the "i" in teal. To the right of "lika" is a teal square containing the word "lab" in white, lowercase, sans-serif font.

your customization

ROTAPULS

Incremental rotary encoders

Compact encoders from size ø28 to ø40 mm for light industrial applications

- Optical or magnetic sensing technology
- Resolutions up to 4096 or 20000 PPR

Description				
	I28 • IM28 • I30	MI36 • MC36	I40 • I41	CK46 • CK41
	• 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 40–46 mm, versatile and multipurpose • Blind hollow shaft
Sensing method	optical (I28, I30) magnetic (IM28)	magnetic	optical	optical
Housing diameter	30 mm max.	36 mm	40 mm	46 mm max.
Resolution max.	2048 PPR (I28, I30) 20000 PPR (IM28)	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% +10Vdc ÷30Vdc +5Vdc ÷30Vdc	+5Vdc ±5%, +10Vdc ÷30Vdc	+5Vdc ±5% +10Vdc ÷30Vdc +5Vdc ÷30Vdc	+5Vdc ±5% +10Vdc ÷30Vdc +5Vdc ÷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 M12 inline connector	cable	cable M12, DSub inline conn.	cable M12, DSub inline conn.
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 encoders for general industrial applications

- Precise optical sensing with unbreakable disk or accurate glass disks
- Flexible resolutions with magnetic sensing



Description			
	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%, +10Vdc ÷30Vdc, +5Vdc ÷30Vdc	+5Vdc ±5%, +10Vdc ÷30Vdc, +5Vdc ÷30Vdc	+5Vdc ±5%, +10Vdc ÷30Vdc, +5Vdc ÷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 encoders for general industrial applications

- Precise optical sensing with unbreakable disk or accurate glass disks
- Flexible resolutions with magnetic sensing

			
	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 sin/cos	Push-Pull, Line Driver Universal circuit sin/cos
Power supply	+5Vdc ±5% +10Vdc ÷30Vdc +5Vdc ÷30Vdc	+5Vdc ±5% +10Vdc ÷30Vdc +5Vdc ÷30Vdc	+5Vdc ±5% +10Vdc ÷30Vdc +5Vdc ÷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 encoders from size ø36 to ø40 mm for light industrial applications

- Cost effective versions with magnetic sensing
- Precise optical versions with energy harvesting multiturn

Description				
	MS40 • MSC40 MS41 • MSC41	ESM36 • EMM36	AS36 • ASC36	EHM36
	• 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 magnetic multiturn • Singleturn up to 18 bit • Energy Harvesting Technology
Sensing method	magnetic	magnetic	optical	magnetic
Housing diameter	40 mm	36 mm	36 mm	36 mm
Resolution max.	SSI: 12 Bit Bit parallel: 8 Bit Analogue: 10 Bit	18 Bit 17 x 24 Bit	20 Bit 20 x 12 Bit	18 Bit 13 x 16 Bit
Output circuit	NPN, PNP, SSI, 0-5V, 0-10V, 4-20 mA	SSI (ESM36) SSI, BiSS (EMM36)	BiSS-C / SSI	BiSS-C / SSI
Power supply	+5Vdc ±5%, +7÷30Vdc +10÷30Vdc, +15÷30Vdc	+5Vdc÷30Vdc	+5Vdc +10Vdc÷30Vdc	+5Vdc÷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 inline connector	cable M12 inline connector	cable M12 inline 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	

Absolute encoders for industrial applications

- Standard BiSS-C/SSI, bit parallel & analogue interfaces
- Solid and blind hollow shaft versions

Description			
	EHM58	AST6 • AMT6	AS58 A • AM58 A
Description	• Size 58, single and multiturn • Energy Harvesting Technology • 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	optical
Housing diameter	58 mm	65 mm	58 mm
Resolution max.	18 Bit 13 + 16 Bit	18 Bit 16 x 14 Bit	12 Bit tot. 16 Bit
Output circuit	SSI BiSS-C	SSI Bit parallel	0-5V, 0-10V, +/-5V, +/-10V, 0-20mA, 4-20mA, 0-24mA
Power supply	+5Vdc÷30Vdc	+5Vdc +10Vdc÷30Vdc	+13Vdc÷30Vdc
Shaft diameter max.	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 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)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	12000 rpm	6000 rpm	12000 rpm
Protection max.	IP67	IP66	IP67
Application			Precise analog output

ROTACOD

Absolute rotary encoders

Absolute encoders for demanding applications

- Precise optical sensing with accuracies up to 0,01° or 0,005°
- Single & multiturns with standard resolutions up to 25 bits



Description	 EH036 • Size 36, miniature optical multiturn • Singleturn up to 24 bit • Energy Harvesting Technology	 EH058 • Size 58, single and multiturn • Energy Harvesting Technology • Solid or blind hollow shaft	 EHCT59 • Size 58 • Through hollow shaft • Single/multiturn • High resolution
	new		
Sensing method	optical	magnetic/optical	optical
Housing diameter	36 mm	58 mm	58 mm
Resolution max.	24 Bit 20 x 16 Bit	24 Bit (+1024 PPR) 20 x 12 Bit (+1024 PPR)	25 Bit (+1024 PPR) 20 x 12 Bit (+1024 PPR)
Output circuit	BiSS-C / SSI	SSI BiSS-C	SSI+Push-Pull, SSI+Line Driver 5V, BiSS-C
Power supply	+5Vdc÷30Vdc	+5Vdc÷30Vdc	+5Vdc +5Vdc÷30Vdc
Shaft diameter max.	solid shaft Ø 6 mm hollow shaft Ø 6 mm	solid shaft Ø 12 mm hollow shaft Ø 15 mm	hollow shaft Ø 15 mm
Electrical connections	cable M12 inline 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)	-25°C +85°C (-13°F +185°F)
Shaft rotational speed max.	6000 rpm	12000 rpm	6000 rpm
Protection max.	IP67	IP67	IP65
Application			

ROTAPULS

Incremental rotary encoders

Programmable incremental encoders

- Configurable parameters & resolution up to 65536 PPR
- Push-button for index setting & configurable Line Driver 24/5 output

				
	IQ36 • CKQ36	IQ58 • IQ58S • CKQ58	IP58 • IP58S • CKP58	CP80 • CP82
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 • Zero setting button • Diagnostic LEDs	• Size 80, low profile • Through hollow shaft up to Ø44 mm • Cable or connector output
Sensing method	magnetic	magnetic	optical	optical
Housing diameter	36 mm	58 mm	58 mm	80 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	• resolution • counting direction • Index position • Index dimension • output circuit
Output circuit	Universal circuit	Universal circuit	Universal circuit 24/5V programmable	
Power supply	+5Vdc÷30Vdc	+5Vdc÷30Vdc	+5Vdc÷30Vdc	+5Vdc÷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	hollow shaft Ø 44 mm
Electrical connections	cable M12 connector	cable M12, M23 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)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	12000 rpm	6000 rpm 3000 rpm
Protection max.	IP69K	IP65	IP65	IP65

ROTACOD

Absolute rotary encoders

Programmable absolute encoders

- SSI & Bit parallel versions with programmable resolutions
- Configurable analogue voltage/current interfaces
- Programmable cam switches & digital outputs



				
Description	HM58 P • HMC58 P	EM58 PA • EMC58 PA	EM58 TI/TV • EMC58 TI/TV	ASR58 • AMR58
	• Absolute, multiturn • Solid/blind hollow shaft • Teach-in function	• Absolute multiturn • Analogue output freely programmable • Solid/blind hollow shaft	• Absolute multiturn • Analogue ramp setting via 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	• current or voltage output • counting direction • preset • over-run function	• teach-in via 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	+10Vdc÷30Vdc	+13Vdc÷30Vdc	+13Vdc÷30Vdc	+10Vdc÷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

- Precise optical or robust magnetic sensing
- Single & multiturn versions with energy harvesting technology

ETHERNET
POWERLINK

PROFI
NET

EtherNet/IP™



Modbus

CC-Link IE Field Basic

EtherCAT®

DeviceNet™

PROFI
BUS

CANopen®

new



EX058 • EXM58

- Ethernet interfaces
- Axial connector output
- Solid and hollow shaft
- Energy Harvesting

new



EBO58 • EBM58

- Compact single & multi turn
- CANopen & Modbus RTU interfaces
- Robust magnetic (EBM58) or precise optical (EBO58) sensing



AS58/AM58 PB • AS58/AM58 CB

- Absolute single & multiturn
- Profibus and CANopen interface
- Solid/blind hollow shaft

Description

Sensing method

magnetic/optical

magnetic/optical

magnetic/optical

Housing diameter

58 mm

58 mm

58 mm

Resolution max.

EX0: 16 x 14 Bit
EXM: 18 x 12 Bit

EBO: 18 Bit, 18 x 12 Bit
EBM: 16 Bit, 13 x 14 Bit

13 Bit
13 x 12 Bit

Output circuit

Profinet, Ethernet/IP, EtherCAT,
Modbus TCP, POWERLINK, CC-Link

CANopen,
Modbus RTU RS485

CANopen
Profibus-DP

Power supply

+5Vdc÷30Vdc

+10Vdc÷30Vdc

+10Vdc÷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

Electrical connections

axial M12 connectors

cable or M12 connector

connection cap with PGs or M12
connectors

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)

Shaft rotational speed max.

6000 rpm

12000 rpm

6000 rpm

Protection max.

IP65

IP65

IP65

Application

Off roads vehicles

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

Encoders for motor feedback applications

- Digital, sine/cosine & commutation output signals
- High operating temperature range

Description				
	C50 • C50MI • C50MA	CB50	CB59	ASB62 • CB62
Description	• Size 50, compact • Through hollow shaft • Extended operating temperature	• Size 50 • UVW commutation signals • Through hollow shaft	• Hollow 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 sin/cos 2048 PPR + CD track
Output circuit	Push-Pull, Line Driver Universal circuit BiSS-C/SSI	Push-Pull, Line Driver	1Vpp	BiSS-C/SSI + sin/cos 1Vpp
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc +5Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5%	+5Vdc ±5% +10Vdc ÷ 30Vdc
Shaft diameter max.	hollow shaft Ø10 mm	hollow shaft Ø10 mm	hollow shaft Ø15 mm	tapered shaft Ø1:10 mm
Electrical connections	cable M12, DSub inline conn.	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 motor feedback applications

- Versions for hoists & big shaft motors with through hollow shaft up to 50 mm
- Precise optical sensing, compact & robust metal housing

				
	C80	C82	C85	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, incremental • Precise optical sensing • Through hollow shaft Ø50 mm • High accuracy	• Size 87, absolute • 25 bit singleturn • Through hollow shaft Ø50 mm • High accuracy
Sensing method	optical	optical	optical	optical
Housing diameter	80 mm	80 mm	87 mm	87 mm
Resolution max.	4096 PPR	8192 PPR	10000 PPR	25 Bit
Output circuit	Push-Pull Line Driver Universal circuit	Push-Pull Line Driver Universal circuit	Line Driver Universal circuit Sine/cosine	BiSS-C + 4096 sin/cos SSI + 4096 sin/cos
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc +5Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc +5Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc +5Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc
Shaft diameter max.	hollow shaft Ø30 mm	hollow shaft Ø44 mm	hollow shaft Ø50 mm	hollow shaft Ø50 mm
Electrical connections	cable M23 connector	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)	-40°C +100°C (-40°F +212°F)
Shaft rotational speed max.	6000 rpm	3000 rpm	2000 rpm	2000 rpm
Protection max.	IP65	IP65	IP65	IP65
Application	Gearmotors Hoists	Gearmotors Hoists	Motor feedback Radars systems	Motors Radars systems

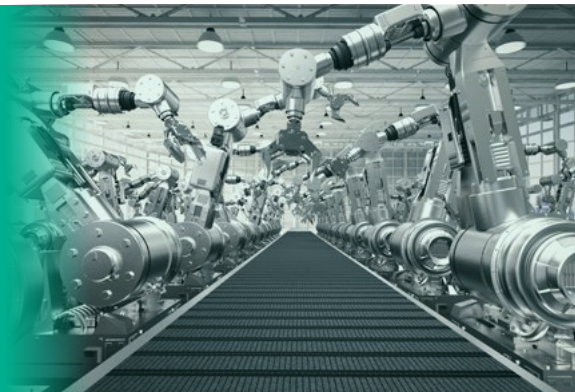
Bearingless & KIT-encoders for integration into motors & spindles

- Absolute encoders for full digital feedback applications
- Robust magnetic or precise optical sensing

Description	 AMM20 • AMM24	 AMM33	 AMM36	 AMM5B • AMM80
	 • Kit-encoder, size 20 or 24 • Incremental or absolute • Very compact dimensions	• 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 Ø45mm
Sensing method	magnetic	magnetic	optical	optical
Outer diameter	20 mm 24 mm	33 mm	35 mm	55 mm 80 mm
Resolution max.	20000 PPR 18 Bit	singleturn: 18 Bit multiturn: 18 x 24 Bit	abs.: 22 x 16 Bit incr.: 256 PPR AB /AB	abs.: 23 x 16 Bit incr.: up to 1024 PPR AB /AB
Output circuit	Push-Pull, Line Driver Universal circuit SSI	SSI BiSS-C	BiSS-C + 1Vpp AB /AB SSI + 1Vpp AB /AB RS485	BiSS-C + 1Vpp AB /AB SSI + 1Vpp AB /AB RS485
Power supply	+5Vdc ±5% +5Vdc÷30Vdc	+5Vdc ± 10%	+5Vdc ±5% Multiturn counter: 3-5.5Vdc	+5Vdc ±5% Multiturn counter: 3-5.5Vdc
Shaft diameter max.	depending on magnet hub	depending on magnet hub	hollow shaft Ø6 mm	hollow shaft Ø24 mm hollow shaft Ø45 mm
Electrical connections	soldering pads PCB connector	PCB connector	PCB connector	PCB connector
Operating temperature max.	-40°C +100°C (-40°F +212°F)	-40°C +115°C (-40°F +239°F)	-25°C +100°C (-13°F +212°F)	-25°C +100°C (-13°F +212°F)
Shaft rotational speed max.	12000 rpm	12000 rpm	10000 rpm	10000 rpm
Protection	IP00	IP00	IP00	IP00
Application	Camera systems Electric motors	Robotics Electromedical devices	Robotics Servo motors	Robotics Servo motors

Bearingless & KIT-encoders for integration into motors & spindles

- Absolute encoders for full digital feedback applications
- Robust magnetic or precise optical sensing



	 AMM8A	 SMAR4	 SMAR1	 SMG
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	depending on ring	PCB: 47 mm ring: 34 mm	-
Resolution max.	abs.: 21 x 12 Bit incr.: 1024 PPR AB /AB	19 Bit	abs.: 19 x 16 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% +7,5Vdc±30Vdc	+5Vdc ± 5%	+5Vdc ±5%	+5Vdc ±5%
Shaft diameter max.	hollow shaft Ø25 mm	hollow shaft Ø47.7 mm	hollow shaft Ø18 mm	depending on measurement target
Electrical connections	PCB connector	PCB connector	PCB connector	cable M12 inline connector
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

Magnetic bearingless encoders

- Robust housing with protection up to IP69K
- Customizable rings with flexible hollow shaft Ø up to 2000 mm

Description			
	MIK36 • MSK36 • MMK36	SGSM • SGSD	SMRI2 • SMRI5 • SMRIL
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 SSI	Push-Pull Line Driver	Push-Pull Line Driver
Power supply	+5Vdc +10Vdc÷30Vdc	+5Vdc ±5% +10Vdc÷30Vdc	+5Vdc ±5% +10Vdc÷30Vdc
Shaft diameter max.	hollow shaft Ø10 mm	hollow shaft Ø50 mm	hollow shaft Ø250 mm
Electrical connections	cable M12 inline connector	cable M12 inline connector	cable M12 inline 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	10000 rpm	25000 rpm
Protection max.	IP68	IP68	IP69K
Application	Contactless sensing Washdown	Contactless sensing Washdown	Torque motors

Absolute magnetic ring encoders

- Contactless & wearfree sensing on rings & round segments
- Hollow shaft Ø up to 280 mm or on request



	 SMRAM	 SMRAM	 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 1024 PPR
Output circuit	SSI + sin/cos BiSS-C + sin/cos	SSI + sin/cos BiSS-C + sin/cos	SSI	SSI SSI + incremental Push-Pull, Line Driver
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5%	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc
Shaft diameter max.	hollow shaft Ø110 mm	any radius	hollow shaft Ø80 mm	Ø230 mm max. ring dimensions on request
Electrical connections	cable M12 inline connector	cable M12 inline connector	cable M12 inline connector	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	-	6000 rpm	-
Protection max.	IP68	IP67	IP69K	IP68
Application	Torque motors	Robotics	Robotics	ATEX motors / generators

ROTAPULS • ROTACOD

Incremental rotary encoders • Absolute rotary encoders

ATEX certified encoders for hazardous areas

- Size 58 & size 77 versions for industrial applications
- Incremental, absolute, analogue & fieldbus versions



				
				
				
				
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 • Ethernet/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	Profinet, EtherNet/IP, EtherCAT, Powerlink, Modbus/TCP, Profibus, CANopen, DeviceNet
Power supply	+5Vdc ±5% +10Vdc÷30Vdc +5Vdc÷30Vdc	+5Vdc ±5% +10Vdc÷30Vdc +5Vdc÷30Vdc	+10Vdc÷30Vdc	+10Vdc÷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

- Robust construction, resistant to harsh environments
- Incremental, absolute SSI, analogue & fieldbus versions

Description				
	MI36K • MC36K	I58SK	EMC59K	EXO59CK • EXM59CK
	• Size 36, compact and robust housing • Solid/blind hollow shaft • Sealed circuits (option)	• Size 58 • Clamp flange • High environmental protection	• Size 58, absolute • Stainless steel housing • SSI or programmable analogue output	• Stainless steel housing • Ethernet encoder • Axial connector output
Sensing method	magnetic	optical/magnetic	magnetic	optical/magnetic
Housing diameter	36 mm	58 mm	58 mm	58 mm
Resolution max.	2048 PPR	10000 PPR	SSI: 13 x 14 bit Analogue: 12 x 14 bit	EXO: 16 x 14 bit EXM: 18 x 12 bit
Output circuit	NPN Push-Pull Line Driver	NPN, Push-Pull, 1Vpp, Line Driver, Universal circuit	SSI Programmable analogue	Profinet, Ethernet/IP, EtherCAT, Modbus TCP, POWERLINK, CC-Link
Power supply	+5Vdc±5% +10Vdc÷30Vdc	+5Vdc±5% +10Vdc÷30Vdc +5Vdc÷30Vdc	+10Vdc÷30Vdc +13Vdc÷30Vdc	+5Vdc÷30Vdc
Shaft diameter max.	solid shaft Ø6 mm hollow shaft Ø6 mm	solid shaft Ø12 mm	hollow shaft Ø15 mm	hollow shaft Ø15 mm
Electrical connections	cable	cable M23 connector	cable	M12 connectors
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	12000 rpm
Protection max.	IP67	IP67	IP67	IP65
Application	Food machinery Marine environment	Food machinery Marine environment	Food machinery Marine environment	Food machinery Marine environment

ROTAPULS

Incremental rotary encoders

Heavy-duty encoders with high mechanical & environmental durability

- Twin encoders & redundant versions
- Power output drivers for long distance signal transmissions
- Protected housings against salt spray & marine environments



				
	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	NPN, Push-Pull, Line Driver, Universal circuit
Power supply	+5Vdc $\pm$ 5% +10÷30Vdc	+5Vdc $\pm$ 5% +10÷30Vdc	+5Vdc $\pm$ 5% +10÷30Vdc +5÷30Vdc	+5Vdc $\pm$ 5% +10÷30Vdc +5÷30Vdc
Shaft diameter max.	hollow shaft $\varnothing$ 16 mm tapered shaft $\varnothing$ 17 mm	hollow shaft $\varnothing$ 16 mm tapered shaft $\varnothing$ 17 mm	solid shaft $\varnothing$ 11 mm	solid shaft $\varnothing$ 11 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 with high mechanical & environmental durability

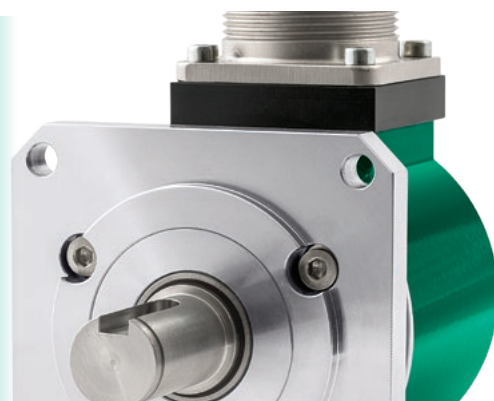
- Box-encoder with movable spring-loaded shaft
- Robust fieldbus encoder
- Magnetic ring encoders for various shaft sizes

				
	ICS	XAC80 • XAC81	SMRIL	SMLAX
Description	• Robust housing with high protection • Spring loaded (mobile) shaft	• Multiturn absolute encoder • Ethernet and fieldbus interface	• 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 1024 PPR
Output circuit	NPN, PNP, Push-Pull, Line Driver, Universal circuit	Profinet, EtherNet/IP, EtherCAT, Modbus TCP, POWERLINK, DeviceNet, Profibus, CANopen	Push-Pull, Line Driver	SSI SSI + incremental Push-Pull, Line Driver
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc +5Vdc ÷ 30Vdc	+10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 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)	-40°C +100°C (-40°F +212°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	IP69K	IP68
Application	Linear measures on rack			ATEX motors / generators

ROTAPULS

Incremental rotary encoders

Specialty encoders & 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	NPN, PNP, Push-Pull, Line Driver, Universal circuit	NPN Push-Pull Universal circuit
Power supply	+5Vdc $\pm$ 5%	+5Vdc $\pm$ 5% +10Vdc $\div$ 30Vdc +5Vdc $\div$ 30Vdc	+10Vdc $\div$ 30Vdc +5Vdc $\div$ 30Vdc
Shaft diameter max.	through hollow shaft $\varnothing$ 12 mm	solid shaft $\varnothing$ 15 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

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.

Rugged inclinometers for industrial & heavy-duty applications

- CANopen, Modbus & analogue interfaces
- Single & double axis versions with standard or high accuracy sensing
- Redundant & multiple interface versions



Description	 IXA	 IXB • IXM	 IXC • IXM
Description	• Analogue A or V output • Single and 2 axes versions • Redundant 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

DRAW-WIRE

Draw-wire encoders

Incremental draw-wire encoders with up to 10 m range

- Incremental, programmable & potentiometer output
- Flexible resolution down to 0,01 mm
- Robust metal housing with integrated encoder

				
	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%	± 0,3 mm	± 0,5 mm	± 0,5 mm
Measuring speed max.	1 (m/sec)	1 (m/sec)	2 (m/sec)	2 (m/sec)
Power supply	+15Vdc÷30Vdc +10Vdc÷30Vdc	+5Vdc÷30Vdc	+5Vdc÷30Vdc	+5Vdc÷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

Absolute draw-wire encoders with up to 10 m range

- SSI, fieldbus & programmable analogue interfaces
- Flexible resolution down to 0,01 mm
- Robust metal housing with integrated encoder



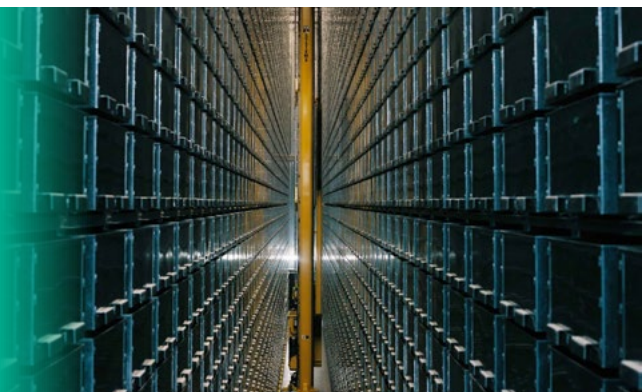
				
	SFAS1	SFAM1 • SFAM2	SFAM1 TI/TV • SFAM2 TI/TV	SFAM1 FB • SFAM2 FB
Description	• Absolute draw wire encoder • Compact housing	• Absolute, 5 or 10 m range • Robust housing	• Settable analogue range • Teach-in with external push buttons • 5 or 10 m stroke	• Ethernet and Fieldbus interfaces • 5 or 10 m stroke
Output circuit / Interface	SSI	SSI	0-5V 0-10V 4-20mA	Profinet, EtherNet/IP, EtherCAT, Modbus/TCP, Powerlink, Profibus-DP, CANopen, Devicenet
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	± 0,5 mm
Measuring speed max.	1 m/sec	2 m/sec	2 m/sec	2 m/sec
Power supply	+10Vdc÷30Vdc	+7,5Vdc÷30Vdc	+13Vdc÷30Vdc	+10Vdc÷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 83 mm 125 x 101 x 114 mm	125 x 101 x 104 mm 125 x 101 x 135 mm
Application	Electromedical			

DRAW-WIRE

Draw-wire encoders

Draw-wire units for flexible combination with common encoders

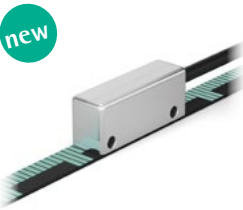
- Robust metal housings
- Measuring ranges up to 6.8 m, 15 m or 50 m



				
	SF0M1	SF0M2	SAK	SBK
Description	• Draw-wire units for incremental encoders • 5 or 6,8 m measuring length • For blind hollow shaft encoders			
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	125 x 83 x 58 mm	125 x 83 x 58 mm	135 x 128 x 181 mm 135 x 128 x 277 mm	200 x 190 x 392 mm 200 x 190 x 432 mm
Application			Automatic storage	Automatic storage

Incremental linear encoders for position measurements

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

Description				
	SME51 • SME21 • SME11	SME52 • SME22 • SME12	SME91 • SME92	SME54
	• Resolution down to 0,08 µm • Optional external reference mark	• Resolution down to 0,5 µm • With integral limit switch sensors	• High performance • Resolution down to 0,02 µm • Reference marks on tape	• High resolution down to 0,08 µm • Programmable version
Resolution max.	0,08 µm	0,5 µm	0,02 µm	80 nm
Gap sensor/tape	0,1 ÷ 2 mm	0,1 ÷ 2 mm	0,1 ÷ 1 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	Line Driver	Push-Pull Line Driver
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc
Electrical connections	cable M12 inline connector	cable	cable M12 inline connector	cable M12 inline connector
Dimensions	40 x 25 x 10 mm	40 x 25 x 10 mm	36 x 14 x 11 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			Position & speed feedback	

Incremental linear encoders for position measurements

- Contactless and wearfree magnetic sensing
- Unconventional designs

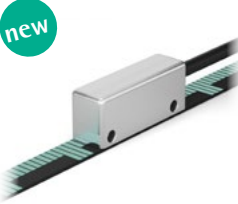
				
	SMB2 • SMB5	SMK • SML	SMIG	SMX2 • SMX5
Description	• Small reading head • External conversion circuitry	• Sensors for standard applications • Large mounting tolerances	• Guided encoder • Measuring length up to 570 mm	• Heavy-duty Hall sensor • Universal circuit • Position and speed measurement
Resolution 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% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ÷ 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

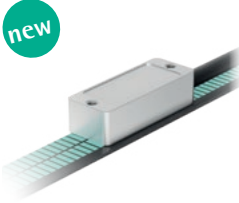
Description				
	SMI2 • SMI5	SMS11 • SMS12	SME91 • SME92	SMSR • SMSR2 • SMSR5
Description	• Small reading head • External conversion circuitry	• 1Vpp sine/cosine output • Integral limit switch sensors • Reference signal	• High performance • Resolution down to 0,02 µm • Reference marks on tape	• Miniature 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 ÷ 1 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	Line Driver	1Vpp
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5%	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5%
Electrical connections	cable + DSub connector	cable cable + M12 connector	cable M12 inline connector	cable cable + M12 connector
Dimensions	25 x 15 x 8,5 mm	40 x 25 x 10 mm	36 x 14 x 11 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	Position & speed feedback	Semiconductor machines Linear motors

LINEPULS • LINECOD

Incremental linear encoders • Absolute linear encoders

Incremental & absolute encoder for motion control

- Incremental versions with integrated limit switches & reference marks
- Absolute versions with additional incremental output

Description				
	SME11 • SME12	SMA3	SMA1	SMA2 • SMA21
	• 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 32,8 m
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, SSI + incremental BiSS-C + incremental Panasonic RS485
Power supply	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5%	+5Vdc ±5% +10Vdc ÷ 30Vdc	+5Vdc ±5% +5Vdc ÷ 30Vdc
Electrical connections	cable M12 inline connector	cable M12 inline connector	cable	cable M12 inline 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

Absolute linear encoders for position measurements

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

				
	SMA5	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 32,8m	• 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, SSI + incremental BiSS-C + incremental Panasonic RS485	SSI CANopen	SSI Modbus/RS485 Analogue 4-20mA, 0-10V
Power supply	+10Vdc÷30Vdc	+5Vdc ±5% +5Vdc÷30Vdc	+10Vdc÷30Vdc	Modbus/SSI: +10÷30Vdc Analogue: +13Vdc÷30Vdc
Electrical connections	cable M12 inline connector	cable M12 inline connector	cable M12 inline connector	cable M12 inline 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

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	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	Profinet, Ethernet/IP, Modbus RTU, EtherCAT, Powerlink, Profibus-DP, CANopen	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)

POSICONTROL

Displays and interfaces

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 & process displays

- LED or Touchscreen displays
- Incremental, absolute & sensor inputs

Description				
	LD200	LD210 • LD220	LD350 • LD355	LD360 • LD365
Description	• Universal LED display • 8 digits display	• Multi-function unit for SSI and analogue sensors • Touchscreen and graphic display	• Multi-function LCD display • Incremental input • Touchscreen and graphic display	• Multi-function LCD display • Incremental input • Touchscreen & graphic display • 2 lines, 2 values displayed
Functionality	Offset value, Preset, mm/inch/fractional inch display, angular display mode (360°), limit switches.	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.	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 $\pm 10V$, 0-10V, 0-20mA or 4-20mA SSI input up to 32 bits	LD350: AB LD355: AB /AB	LD360: AB LD365: 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 $\pm 20\%$	+18Vdc +30Vdc 115/230 Vac $\pm 10\%$	+18Vdc +30Vdc 115/230 Vac	+18Vdc +30Vdc 115/230 Vac
Counting frequency max.	1 MHz	-	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)

Signal converters & signal splitters for encoders

- High quality & low latency signal conversion
- Easy & comfortable DIN rail mounting & connectivity

				
	IF09 • IF10	IF11	IF20	IF31
Description	• Level converter • Signal splitter • Dual encoder switch	• Dual SSI switch	• Level converter • Direction decoder • Amplifier	• Sin/cos interpolator • Error output
Functionality	Signal splitter. HTL/TTL level converter. Galvanic insulation. Amplification.	Changeover switch. 2 slaves to 1 master.	HTL/TTL level converter. Galvanic insulation. Amplification.	Adjustable interpolation. Multiplying/dividing. Glitch filter.
Encoder input	1 input (IF09) 2 inputs (IF10) HTL or TTL / RS422	2 inputs SSI	1 input HTL or TTL / RS422	sine/cosine 1Vpp
Serial interface / Outputs	2 outputs (cascadable) HTL or TTL / RS422	1 output (cascadable)	1 output HTL or TTL / RS422	HTL or TTL
Power supply	+5Vdc +30Vdc +10Vdc +30Vdc +12Vdc +30Vdc	+12Vdc +30Vdc	+5Vdc +30Vdc	+18Vdc +30Vdc
Counting frequency	750 kHz 1 MHz	1 MHz	500 kHz	400 kHz
Electrical connections	terminal blocks DSub connectors	terminal blocks	terminal blocks DSub connector	terminal blocks Dsub connector
Protection	IP20	IP20	IP20	IP20
Dimensions	85 x 90 x 50 mm 102 x 102 x 23 mm	102 x 102 x 23 mm	102 x 102 x 23 mm	135 x 118 x 34 mm

Gateways & signal converters for encoders

- BiSS-C/SSI encoder gateway with robust industrial housing
- Optical fiber modules for long distance transmissions

Description				
	IF40 • IF43	IF41 • IF42	IF55 • IF56	IF60/IF61 • IF62/IF63
Description	• Incremental to analog converter • IF40: Position to V/A • IF43: Velocity to V/A • Incremental to RS232/485	• SSI to analog converter • IF41: SSI to V/A • IF42: SSI & AB to Parallel • SSI to RS232/485	• Encoder Gateway • BiSS-C/SSI to Ethernet • SSI to Fieldbus • Robust metal housing	• Fiber optica transmitter • Incremental & SSI input
Functionality	Scaling/Filter. Linearization. Linkage (A+B).	Scaling/Filter. Linearization. Linkage (A+B).	Linear/Rotary position converter. Scaling factor. Counting direction. Preset/Offset.	Safe transmission up to 2km. Signal transmitter in ATEX areas. Short conversion time.
Encoder input	HTL or TTL / RS422	SSI (up to 32 bit) HTL/TTL	SSI (up to 30 bit)	HTL or TTL / RS422 SSI
Serial interface / Outputs	± 10 V 0-20 mA 4-20 mA RS232 RS485 Modbus RTU	Parallel Analogue RS232 RS485 Modbus RTU	Profinet, EtherNet/IP, EtherCAT, Modbus TCP, POWERLINK, CC-Link, Profibus, CANopen, DeviceNet	HTL or TTL / RS422 SSI
Power supply	+18Vdc +30Vdc	+18Vdc +30Vdc	+10Vdc +30Vdc	+5Vdc ±5% +10Vdc +30Vdc
Counting frequency max.	1 MHz	1 MHz	SSI = 2 MHz BiSS = 10 MHz	1 MHz
Electrical connections	terminal blocks mini USB	terminal blocks mini USB, DSUB	PGs M12 connectors	terminal blocks
Protection	IP20	IP20	IP65	IP40
Dimensions	102 x 102 x 23 mm	102 x 102 x 23 mm	78 x 60 x 48 mm	111 x 93 x 19 mm

Global presence makes us close to our customers



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