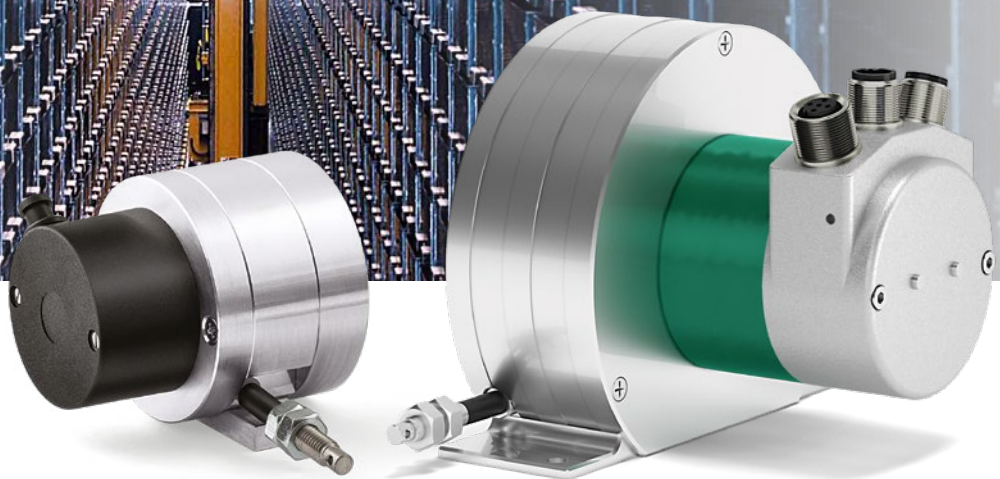




**35 YEARS
YOUNG**
1982.2017

lika[®]

Smart encoders & actuators



Draw-wire encoders



INDEX

DRAW-WIRE encoders

SFP miniature wire actuated potentiometer	page 10
SFE miniature incremental draw-wire encoder	page 12
SFA miniature absolute draw-wire encoder	page 14
SFE-5000 • SFE-10000 programmable incremental draw-wire encoder	page 16
SFA-5000 • SFA-10000 absolute draw-wire encoder	page 18
SFA-5000 TA • SFA-10000 TA absolute draw-wire encoder with analogue output	page 20
SFA-5000 FB • SFA-10000 FB draw-wire encoder with fieldbus interface	page 22
SF-I • SF-A draw-wire support for encoders	page 24
SAK draw-wire support for incremental & absolute encoders	page 26
SBK draw-wire support for incremental & absolute encoders	page 28



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.



ROTAPULS • ROTACOD
Rotary encoders



ROTAMAG
Magnetic encoders & Kit-encoders



LINEPULS • LINECOD
Linear encoders



DRAW-WIRE
Draw-wire encoders



COUPLINGS
Flexible & transmission couplings



TILTCOD
Inclinometers



POSICONTROL
Displays & signal converters
Encoder Interfaces



DRIVECOD
Rotary actuators



DRAW-WIRE

Cable-pulling 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

	 SFP	 SFE	 SFE-5000	 SFE-10000
Description	<ul style="list-style-type: none"> • Draw-wire potentiometer • Current or Ohm output 	<ul style="list-style-type: none"> • Draw-wire encoder • Incremental, compact 	<ul style="list-style-type: none"> • Incremental, 5 m range • Programmable resolution • Robust and compact 	<ul style="list-style-type: none"> • Incremental, 10 m range • Programmable resolution • Robust and compact
Output circuit	0-10V 4-20mA	Universal circuit	Universal circuit	Universal circuit
Resolution		0,2 mm	0,012 mm	0,012 mm
Measuring length max.	2000 mm	2000 mm	5000 mm	10000 mm
Linearity	± 0,25%		± 0,5 mm	± 0,5 mm
Measuring speed max.	2 (m/sec)	2 (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 connector M12, M23	cable connector M12, M23
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	56x56x79 mm	56x56x64 mm	125x101x81 mm	125x101x112 mm
Application		Electromedical		

DRAW-WIRE

Cable-pulling encoders

Draw-wire encoders up to 10 m Linear absolute measurement

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



SFA



SFA-5000 • SFA-10000



SFA-5000 TA • SFA-10000 TA



SFA-5000 FB • SFA-10000 FB





Description	<ul style="list-style-type: none"> • Absolute draw-wire encoder • Compact housing 	<ul style="list-style-type: none"> • Absolute, 5 or 10 m range • Robust housing 	<ul style="list-style-type: none"> • Settable analogue output • Teach-in with external push buttons • 5 or 10 m range 	<ul style="list-style-type: none"> • Fieldbus interface • 5 or 10 m range
Output circuit / Interface	SSI	SSI	0-5V 0-10V 4-20mA	Profibus-DP, CANopen, Devicenet, EtherCAT, Powerlink, Profinet
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.	2 m/sec	2 m/sec	2 m/sec	2 m/sec
Power supply	+10÷30Vdc	7,5÷34Vdc	+13÷30Vdc	7,5÷34Vdc
Electrical connections	cable M12 connector	cable M12, M23 connector	cable M12 connector	M12 connectors or PGs
Operating temperature	-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	56x56x79 mm	125x101x81 mm 125x101x112 mm	125x101x81 mm 125x101x107 mm	125x101x104 mm 125x101x135 mm
Application	Electromedical			

DRAW-WIRE

Cable-pulling encoders

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

- Measuring range up to 50 m

	 SF-I	 SF-A	 SAK	 SBK
Description	<ul style="list-style-type: none"> • Draw-wire units for incremental encoders • 5 or 6,8 m measuring length • For blind hollow shaft encoders 	<ul style="list-style-type: none"> • Draw-wire units for absolute encoders • 5 or 6,8 m measuring length • For blind hollow shaft encoders 	<ul style="list-style-type: none"> • Draw-wire units for encoders • Measuring length up to 15 m • For servo flange encoders 	<ul style="list-style-type: none"> • 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	-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	from 200x190x283 mm to 200x190x432 mm
Application			Automatic storage	Automatic storage

APPLICATIONS



A wire actuated encoder can be used to replace a standard encoder in many applications. They are compact, easy to mount and tough. They can be an ideal solution, for instance, when the operational space is constricted or the environmental conditions are severe.

The encoder body, in fact, can be mounted away from the wire and the axis being monitored to a safe, easily accessible and adequately protected place while the measuring wire requires small space and can be subjected to much harsher conditions. Typical applications are **mobile equipment and construction machinery such as outriggers, stabilizing slides and booms, telescopic cranes, bucket trucks, forklift trucks, AGVs, agricultural and forestry machinery, scissor lifts, car lifts, loading platforms, automated warehouses, electro-medical equipment such as operation and examination tables, hospital beds and dentist's chairs.**

Draw-wire encoders are used to monitor outriggers, stabilizing slides and booms in utility vehicles and construction equipment as well as various applications in fork lift trucks. Lika's draw-wire encoders are able to operate reliably in harsh environments to ensure long service life with minimum maintenance.



When it comes to the lifting mechanisms of elevating work platforms and scissor lifts, safety is crucial and they must comply with the highest safety requirements. For such demanding applications, Lika's cable-pulling encoders can be relied on to monitor vertical movements precisely and safely in a simple and cost-effective way.

Draw-wire encoders are perfect to meet the measuring requirements of warehouses and automated guided vehicles. They are easy to install, even when the space is constricted and will measure from short to very long paths of up to 50m/164ft. A broad range of output interfaces is available to meet many specific requirements.

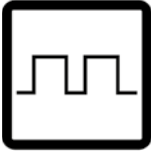
Draw-wire encoders are used in **computed tomography scan machines, operation and examination tables, hospital beds and dentists' chairs.** Lika's draw-wire encoders are compact, highly precise and ensure the smoothest path.

For medical applications they deliver an affordable solution and the greatest flexibility.



ENCODER SOLUTIONS

LIKA'S DRAW-WIRE ENCODERS ARE AVAILABLE WITH A LARGE SELECTION OF INTERFACES:



INTEGRAL PROGRAMMABLE INCREMENTAL ENCODER

with fully configurable resolutions available to 10 μm (16,384 PPR) and HTL/TTL universal output circuit.



INTEGRAL ANALOG ABSOLUTE ENCODER

with resolutions available to 12 μm . Features 'TEACH-IN' travel length buttons and overrun safety function. Current and voltage output versions are available.



INTEGRAL POTENTIOMETER

with 1-20 k Ω resistance output, 4-20mA current output or 0-10V voltage output.



INTEGRAL SSI ABSOLUTE ENCODER

with single step resolutions available to 12 μm and Binary or Gray code output options.



INTEGRAL ETHERNET AND FIELDBUS ABSOLUTE ENCODER

with resolutions to 24 μm . Options include: Profinet, EtherNet/IP, EtherCAT, POWERLINK, MODBUS TCP, Profibus, CANopen, DeviceNet, and MODBUS RTU. The full set of information and configuration parameters are available; position and velocity readout, full scaling, preset, code sequence, extensive diagnostics, and Ethernet and bus network settings.



EtherNet/IP™

CANopen®

ETHERNET
POWERLINK

DeviceNet™

Modbus

EtherCAT®

In addition to draw wire units with an integral encoder, the SF-I and SF-A cable pulling mechanisms offer the unparalleled freedom to select the encoder that best fits your application. The integration of almost any encoder is possible so the range of models and configurations is virtually unlimited with measuring lengths of up to 6,800 mm / 22.31 ft.

DRAW-WIRE

Miniature wire actuated transducer

lika

Series

SFP



- Robust and space saving construction
- Integrated potentiometer
- Measuring length up to 2000 mm
- Current or voltage output



SFP

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range:	-25°C +85°C (-13°F +185°F)
Protection:	IP64

MECHANICAL SPECIFICATIONS

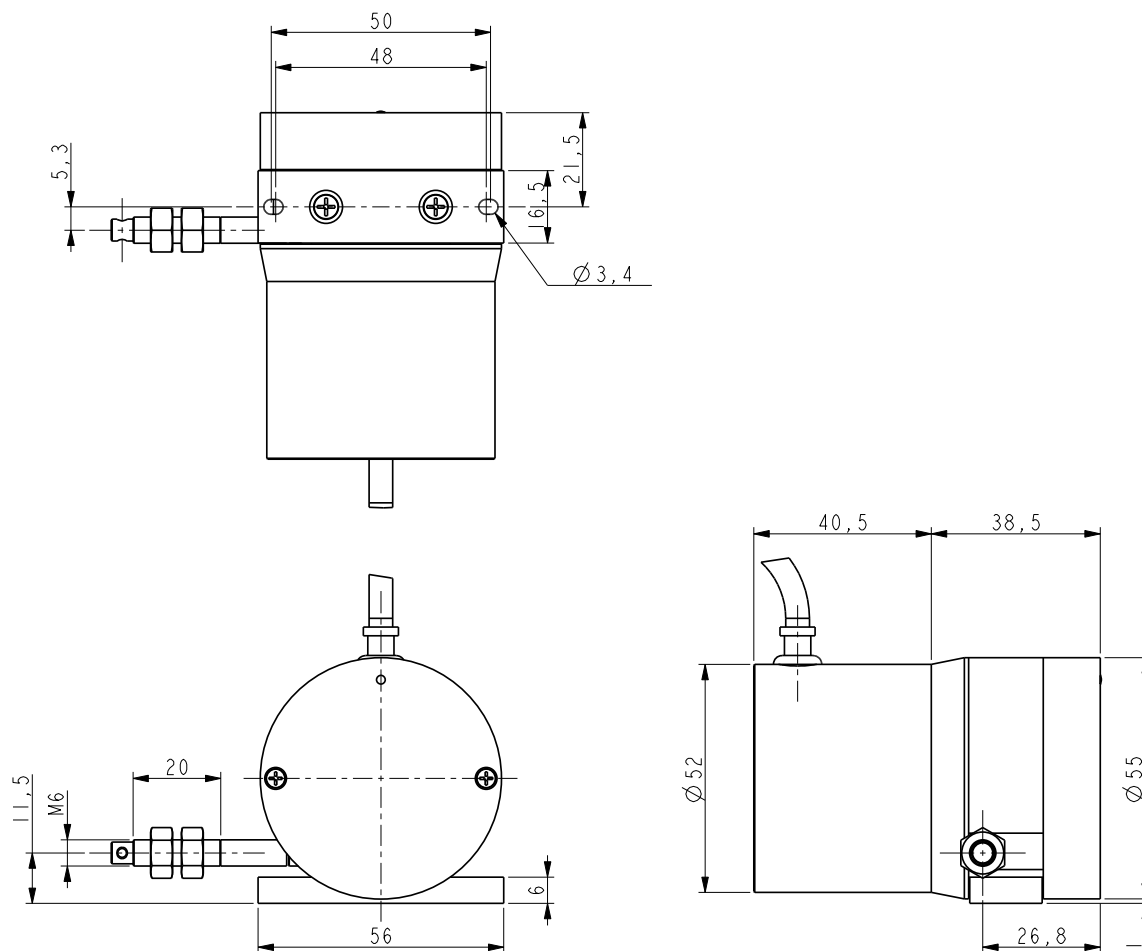
Dimensions:	see drawing
Stroke per turn:	100 mm
Wire retraction force:	3 ÷ 5 N
Measuring length:	300, 500, 1000, 1500, 2000 mm
Measuring speed:	1 m/sec max.
Repeat accuracy:	± 0,15 mm
Weight:	~ 0,2 kg
Connections:	cable 2,0 m

ELECTRICAL SPECIFICATIONS

Current output (AI1):	4-20mA, ±5%, Power supply +10 +30Vdc
Voltage output (AV2):	0-10V, ±5%, Power supply +15 +30Vdc
Resistance output (1, 5, 10, 20):	1, 5, 10, 20 kΩ ±5%, 2W Linearity ±0,25%
Consumption:	2 mA max. (with AI1, AV2 output)

MATERIALS

Housing:	Aluminium
Wire:	Stainless steel



SFP

Order code

SFP	-	XXXX Ⓐ	-	XX Ⓑ	-	XX Ⓒ
-----	---	-----------	---	---------	---	---------

Ⓐ MEASURING LENGTH

300 = 300 mm
 500 = 500 mm
 1000 = 1000 mm
 1500 = 1500 mm
 2000 = 2000 mm

Ⓑ OUTPUT

AI1 = current output 4 -20mA
 AV2 = voltage output 0-10V
 1 = resistance output 1 kΩ
 5 = resistance output 5 kΩ
 10 = resistance output 10 kΩ
 20 = resistance output 20 kΩ

Ⓒ CABLE LENGTH

L2 = cable output 2 m
 L4 = cable output 4 m
 Lx = cable length on request

DRAW-WIRE

Miniature draw-wire encoder

lika

Series

SFE



- Robust and space saving construction
- Integrated incremental encoder
- Measuring length up to 2000 mm



SFE

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range:	-25°C + 85°C (-13°F + 185°F)
Protection:	IP64

MECHANICAL SPECIFICATIONS

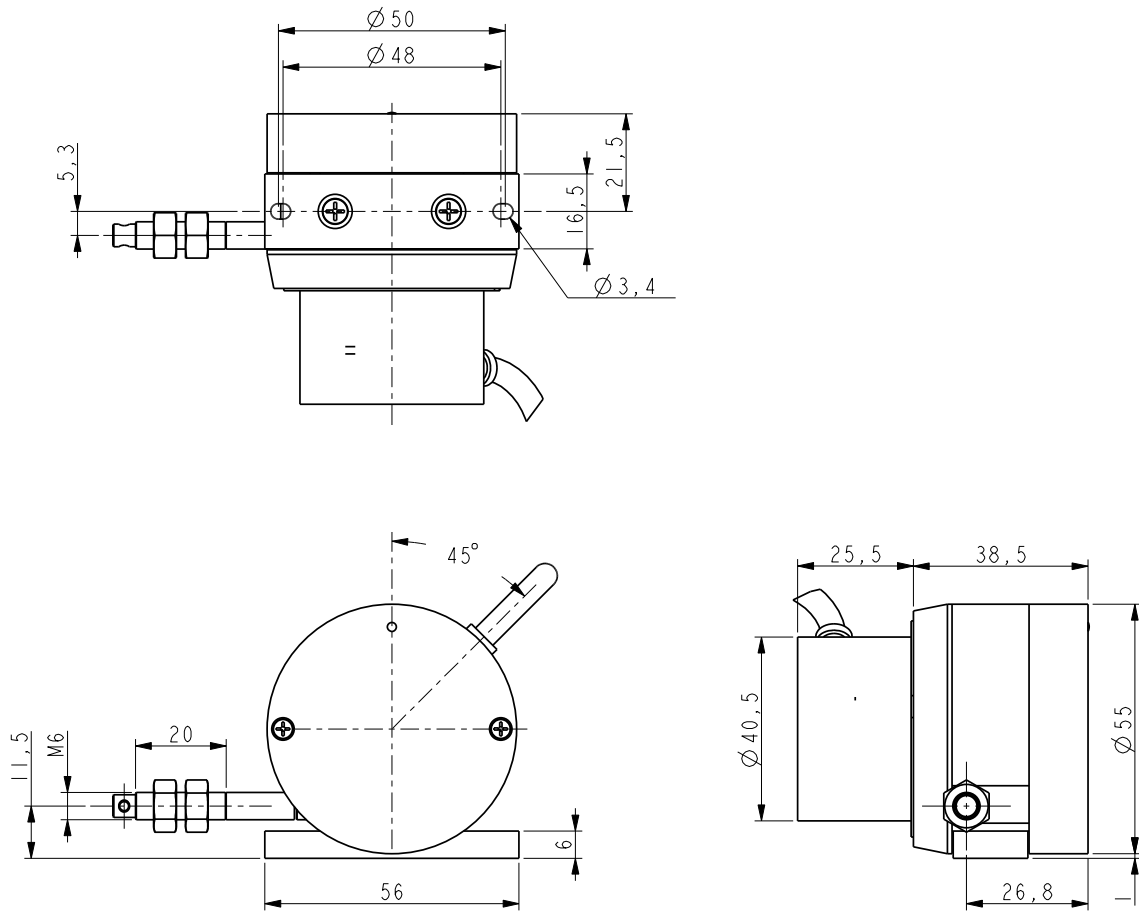
Dimensions:	see drawing
Stroke per turn:	100 mm
Wire retraction force:	3 ÷ 5 N
Measuring length:	1500, 2000 mm
Measuring speed:	1 m/sec max.
Weight:	~ 0,2 kg
Connections:	cable 2,0 m

ELECTRICAL SPECIFICATIONS

Power supply:	+5Vdc +30Vdc
Output circuit:	Universal circuit PP/LD
Resolution:	1 / 0,5 / 0,4 / 0,05 mm
Output current:	40 mA max.
Input current:	60 mA max.
Output signals:	AB, /AB

MATERIALS

Housing:	Aluminium + plastic
Wire:	stainless steel, non magnetic - UNI EN 4305



SFE

Order code

SFE	-	XXXX ⓐ	-	X ⓑ	-	XXX ⓒ	-	X ⓓ	-	XX ⓔ
-----	---	-----------	---	--------	---	----------	---	--------	---	---------

ⓐ MEASURING LENGTH

1500 = 1500 mm
2000 = 2000 mm

ⓑ OUTPUT CIRCUIT

H = PP/LD universal circuit

ⓒ RESOLUTION

100 = 1 mm (x4 = 0,25 mm)
200 = 0,5 mm (x4 = 0,125 mm)
250 = 0,4 mm (x4 = 0,1 mm)
500 = 0,2 mm (x4 = 0,05 mm)

ⓓ POWER SUPPLY

4 = +5Vdc +30Vdc

ⓔ CONNECTIONS

L2 = 2 meters
L4 = 4 meters
Lx = cable length on request

DRAW-WIRE

Miniature absolute draw-wire encoder

lika

Series

SFA



- Absolute draw-wire encoder
- Robust and compact design
- Resolution from 0.1 to 0.012 mm
- Measuring range 1000 and 2000 mm



SFA

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range:	-25°C + 85°C (-13°F + 185°F)
Protection:	IP64

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Stroke per turn:	100 mm
Wire retraction force:	3 ÷ 5 N
Measuring length:	1000, 2000 mm
Measuring speed:	1 m/sec max.
Weight:	~ 0,3 kg
Connections:	M12 8 pin plug, cable 2,0 m

ELECTRICAL SPECIFICATIONS

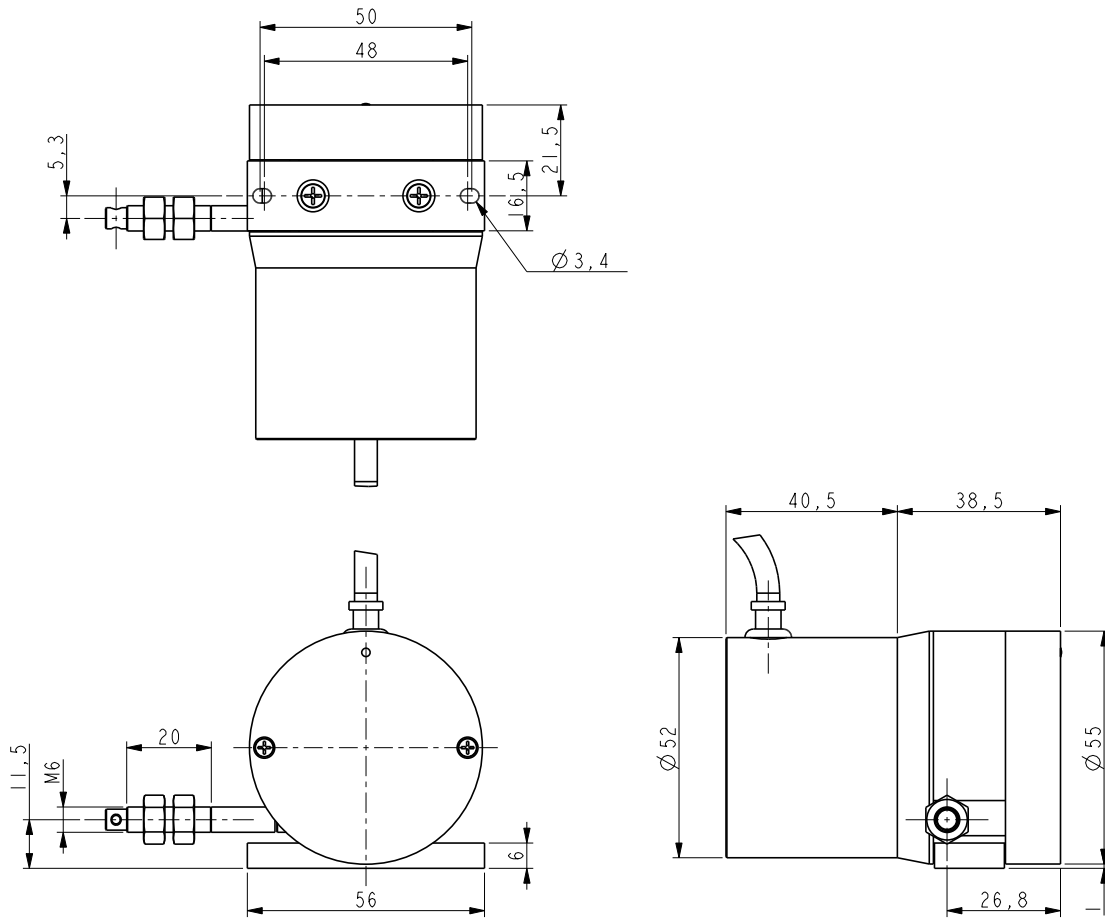
Resolution:	0.012, 0.025, 0.05, 0.1 mm
Output code:	Binary, Gray
Power supply:	+10Vdc +30Vdc
Power consumption:	25 mA max.
Output circuits:	SSI (25 bit, LSB aligned, clock 300 kHz max, Tp > 64 µsec)
Protection:	against inversion of polarity
EMC:	acc. to EN-61000-4-2/A1 EN-61000-4-4
Battery life:	10 years min.
Function:	• Zero setting • Counting direction

MATERIALS

Housing:	non corroding, UNI EN AW-6082
Wire:	stainless steel, non magnetic - UNI EN 4305

ACCESSORIES

EC-M12F8-LK-M8-5:	M12 cordset with 5 m cable
EC-M12F8-LK-M8-10:	M12 cordset with 10 m cable
E-M12F8:	M12 8 pin mating connector



SFA

Order code

SFA	-	XXXX	-	XX	-	XXXX	-	XXX
		Ⓐ		Ⓑ		Ⓒ		Ⓓ

Ⓐ MEASURING LENGTH

1000 = 1000 mm
2000 = 2000 mm

Ⓑ OUTPUT CIRCUIT

BA = SSI, binary code, LSB aligned
GA = SSI, gray code, LSB aligned

Ⓒ RESOLUTION

8192 = 0.012 mm
4000 = 0.025 mm
2000 = 0.05 mm
1000 = 0.1 mm

Ⓓ CONNECTIONS

L2 = 2 meters
Lx = cable length on request
M0,5 = 0.5 m cable + M12 8 pin inline connector
M2 = 2 m cable + M12 8 pin inline connector

DRAW-WIRE

Programmable incremental draw-wire encoder

lika

Series

SFE-5000 • SFE-10000



- Integrated programmable encoder
- Universal output circuit HTL/TTL
- Compact design & easy installation
- 5000 & 10000 mm measuring length
- Resolution up to 16384 PPR (progr.) or pre-programmed 0.05, 0.1, 0.2



SFE-5000

ENVIRONMENTAL SPECIFICATIONS

Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Drum circumference:	200 mm
Wire retraction force:	5000: 3,2 ÷ 6,5 N 10000: 3,2 ÷ 6 N
Measuring length:	5000, 10000 mm
Linearity:	± 0,5 mm
Repeatability:	± 0,1 mm (or ± 1 digit with resolution <2000)
Measuring speed:	2 m/sec max.
Weight:	~ 0,8 kg
Connections:	M12, M23 plug or cable output 1 m

ELECTRICAL SPECIFICATIONS

Power supply:	+5Vdc +30Vdc
Output circuit:	Universal circuit PP/LD
Resolution:	0.05, 0.1, 0.2 mm or programmable (16384 PPR max.)
Output current:	40 mA max.
Input current:	60 mA max.
Output signals:	AB0, /AB0

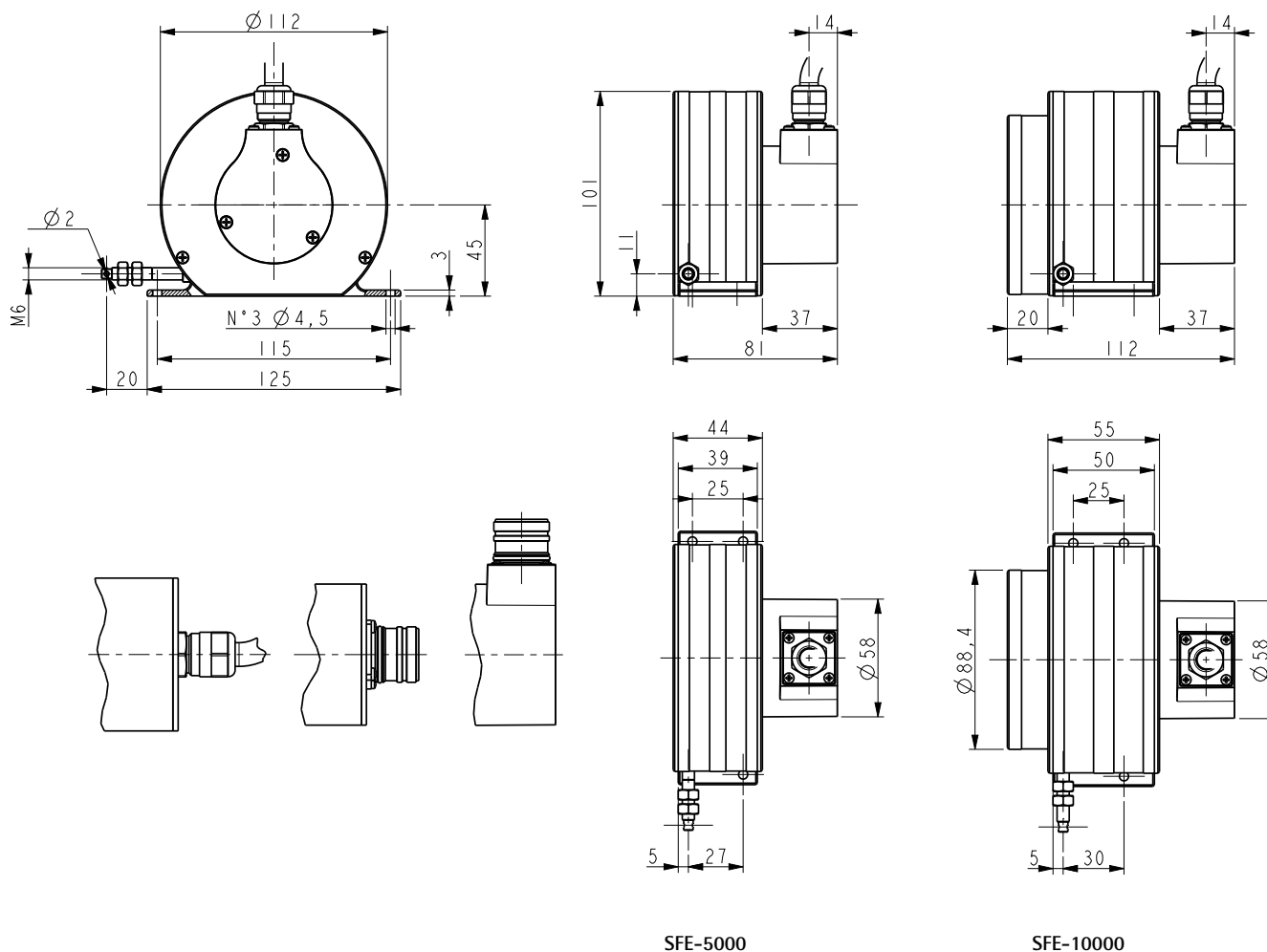
MATERIALS

Housing (draw-wire):	anticorodal, UNI EN AW-6082
Housing (encoder):	die cast aluminium, UNI EN AC-46100
Wire:	stainless steel, non magnetic - UNI EN 4305

ACCESSORIES

EPFL 121:	M23 12 pin mating connector
EC-C12F-LK-I8-5:	M23 cordset with 5 m cable
EC-C12F-LK-I8-10:	M23 cordset with 10 m cable
E-M12F12:	M12 12 pin mating connector
EC-M12F12-LK-T12-5:	M12 cordset with 5 m cable*
EC-M12F12-LK-T12-10:	M12 cordset with 10 m cable*
KIT IP/IQ58:	USB programming kit
EC-IP/IQ58-M23:	M23 programming cable
EC-IP/IQ58-M12:	M12 programming cable

*not suitable for programming



SFE-5000

SFE-10000

Order code

SFE	-	XXXXX	-	X	-	XXXX	-	X	-	X	XX
		(a)		(b)		(c)		(d)		(e)	(f)

(a) MEASURING LENGTH

5000 = 5000 mm
10000 = 10000 mm

(b) OUTPUT CIRCUIT

H = PP/LD universal circuit

(c) RESOLUTION

4000 = 0,05 mm
2000 = 0,1 mm
1000 = 0,2 mm
PROG = programmable (0,01 mm max.)

(d) POWER SUPPLY

4 = +5Vdc +30Vdc

(e) CONNECTION POSITION

- = axial
R = radial

(f) CONNECTIONS

L1 = cable output 1 meter
L2 = cable output 2 meters (max. length)
M = M12 12 pin plug
M2 = M23 12 pin plug

DRAW-WIRE

Absolute draw-wire encoder

lika

Series

SFA-5000 • SFA-10000



- Integrated absolute encoder
- SSI interface, gray or binary coded
- Compact design & easy installation
- 5000 & 10000 mm measuring length
- Resolution 0.1, 0.05, 0.024 mm (other on request)



SFA-5000

ENVIRONMENTAL SPECIFICATIONS

Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Drum circumference:	200 mm
Wire retraction force:	5000: 3,2 ÷ 6,5 N 10000: 3,2 ÷ 6 N
Measuring length:	5000, 10000 mm
Linearity:	± 0,5 mm
Repeatability:	± 0,1 mm
Measuring speed:	2 m/sec max.
Weight:	~ 0,8 kg
Connections:	M12, M23 plug or cable output 1 m

ELECTRICAL SPECIFICATIONS

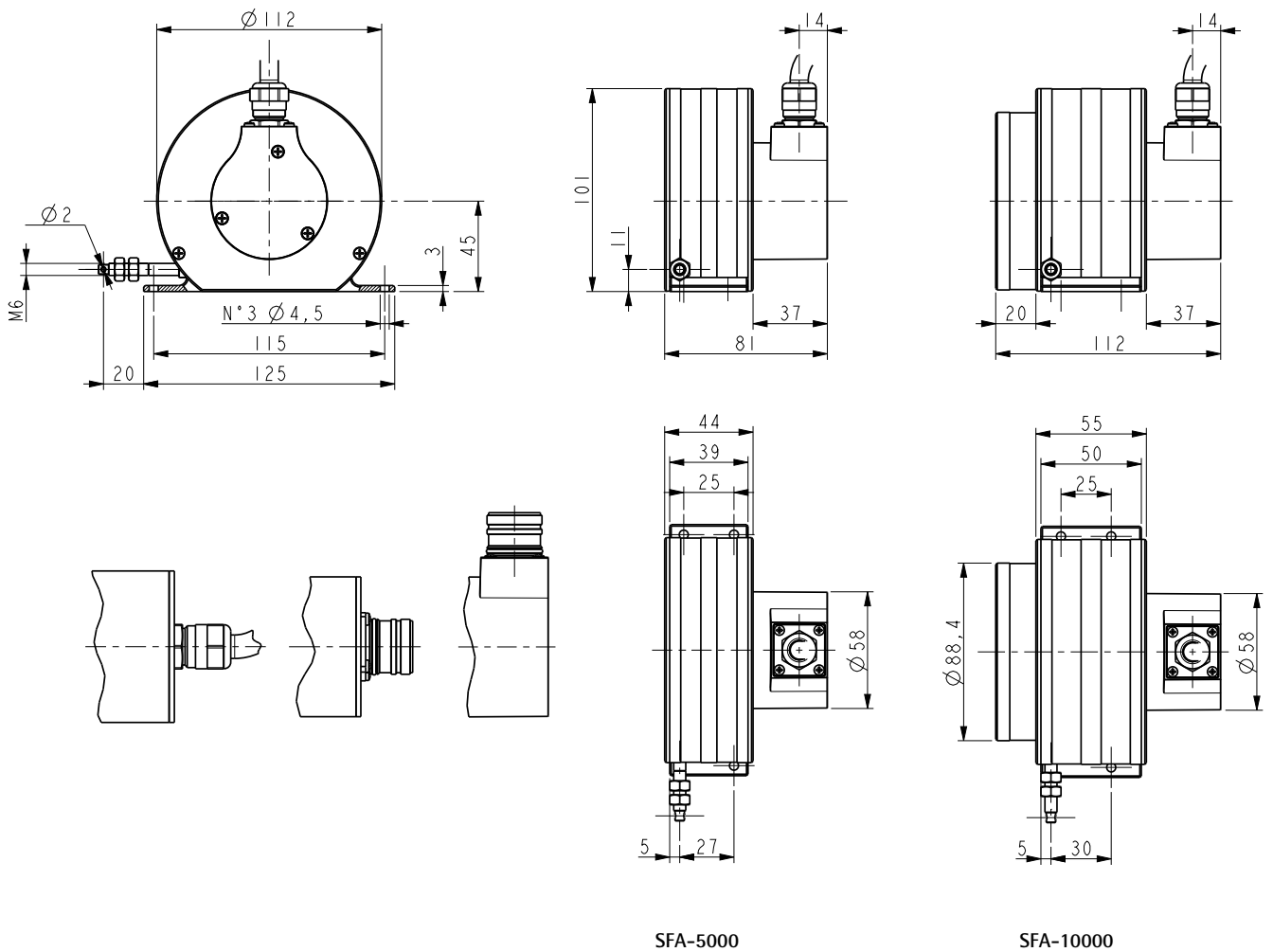
Power supply:	+7,5Vdc +34Vdc
Output circuit:	SSI, LSB aligned, gray or binary
Resolution:	0.1, 0.05, 0.024 mm
Consumption:	0,6 W
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Functions:	<ul style="list-style-type: none">• counting direction (input)• Zero setting/Preset (input)

MATERIALS

Housing (draw-wire):	anticorodal, UNI EN AW-6082
Housing (encoder):	die cast aluminium, UNI EN AC-46100
Wire:	stainless steel, non magnetic - UNI EN 4305

ACCESSORIES

EPFL121H:	M23 12 pin connector
EM12F8:	M12 8 pin mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-CR12F-S28-T12-xx:	cordset xx m, M23 connector
EC-M12F8-LK-M8-xx:	cordset xx m, M12 8 pin connector
LKM-386:	fixing clamps



SFA-5000

SFA-10000

Order code

SFA	-	XXXX a	-	X b	-	XXXX c	-	X d	XX e
-----	---	-----------	---	--------	---	-----------	---	--------	---------

a MEASURING LENGTH

5000 = 5000 mm
10000 = 10000 mm

b OUTPUT CIRCUIT

BA = SSI, binary code, LSB aligned
GA = SSI, gray code, LSB aligned

c RESOLUTION

8192 = 0,024 mm
4000 = 0,05 mm
2000 = 0,1 mm

d CONNECTION POSITION

- = axial
R = radial

e CONNECTIONS

L1 = 1 meter
Lx = cable output x meters
M = M12 8 pin plug
M2 = M23 12 pin plug

DRAW-WIRE

Absolute draw-wire encoder with analogue output

lika

Series

SFA-5000 TA • SFA-10000 TA



- Integrated absolute encoder
- Programmable analogue output
- Compact design & easy installation
- 5000 & 10000 mm measuring length
- Teach-in of travel length by push buttons
- Output 0-5V, 0-10V & 4-20mA
- Overrun function
- Cable or M12 connector



SFA-5000 TA

ENVIRONMENTAL SPECIFICATIONS

Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Drum circumference:	200 mm
Wire retraction force:	5000: 3,2 ÷ 6,5 N 10000: 3,2 ÷ 6 N
Measuring length:	5000, 10000 mm
Linearity:	± 0,5 mm
Repeatability:	± 0,1 mm
Measuring speed:	2 m/sec max.
Weight:	~ 0,8 kg
Connections:	M12 plug or cable output 1 m

ELECTRICAL SPECIFICATIONS

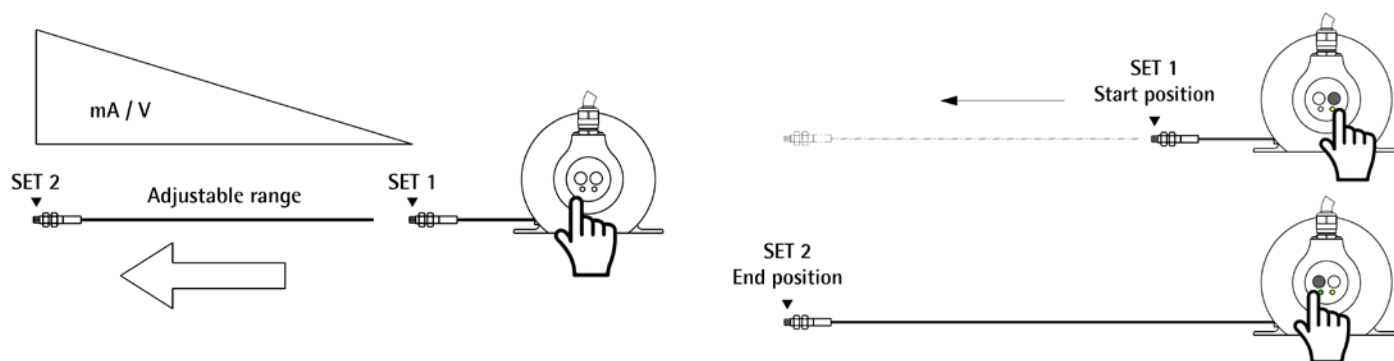
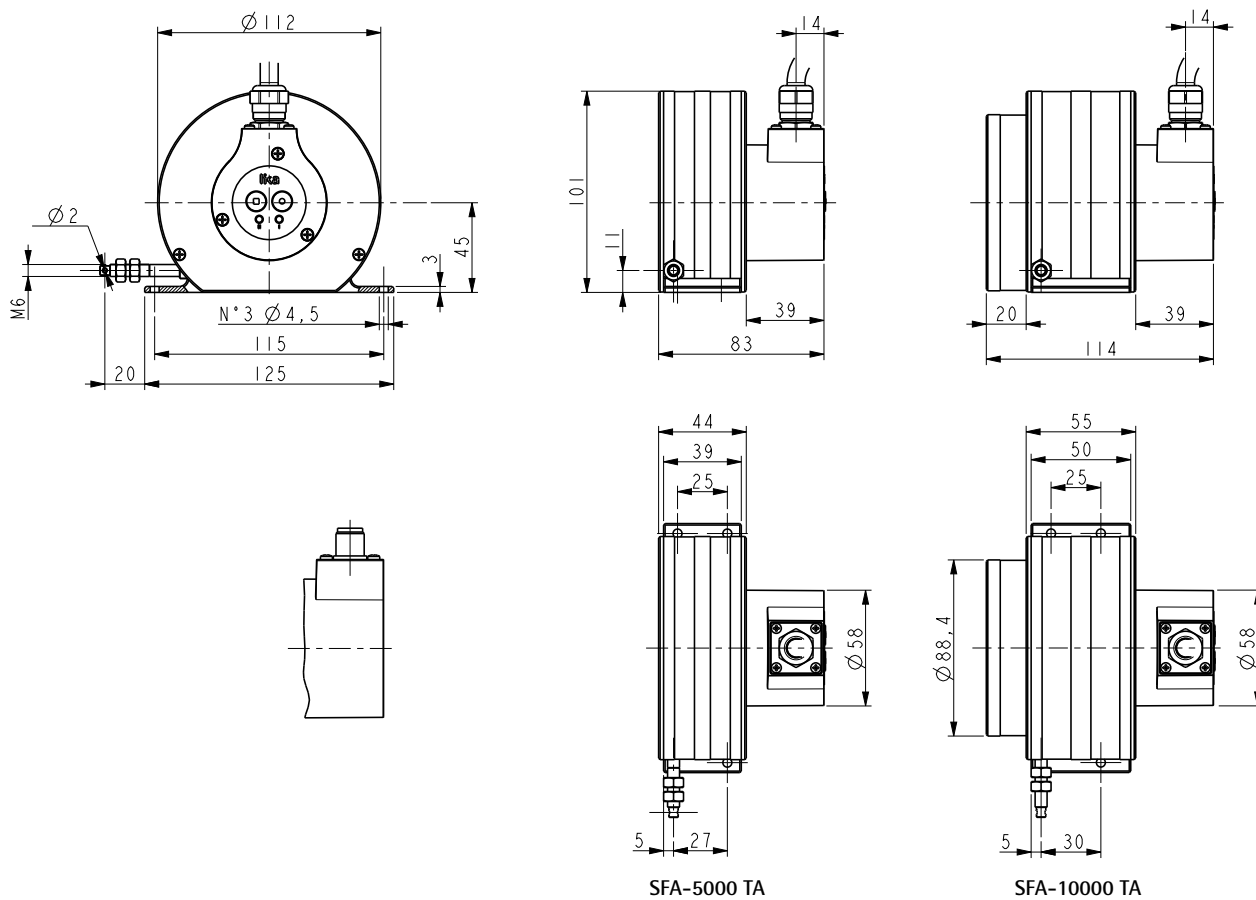
Power supply:	+13Vdc +30Vdc
Output circuit:	0-5V, 0-10V, 4-20mA
Output range:	adjustable by teach-in buttons
Resolution:	65536 steps of output range (min. step = 0,048 mm)
Consumption:	1,5 W
Protection:	against inversion of polarity and short-circuit
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• Teach-in of travel length • Overrun

MATERIALS

Housing (draw-wire):	anticorodal, UNI EN AW-6082
Housing (encoder):	die cast aluminium, UNI EN AC-46100
Wire:	stainless steel, non magnetic - UNI EN 4305

ACCESSORIES

E-M12FC:	M12 5 pin connector
EC-M12FC-LK-I5-5:	M12 cordset with 5 m cable
EC-M12FC-LK-I5-10:	M12 cordset with 10 m cable



Order code

SFA	-	XXXXX	-	XXX	-	PROG	-	R	XX
		Ⓐ		Ⓑ		Ⓒ		Ⓓ	Ⓔ

Ⓐ MEASURING LENGTH

5000 = 5000 mm
10000 = 10000 mm

Ⓑ OUTPUT CIRCUIT

TI1 = 4-20 mA
TV1 = 0-5V
TV2 = 0-10V

Ⓒ RESOLUTION

PROG = adjustable by teach-in

Ⓓ CONNECTION POSITION

R = radial

Ⓔ CONNECTIONS

L1 = 1 meter
Lx = cable output x meters
M = M12 5 pin plug

DRAW-WIRE

Absolute draw-wire encoder with fieldbus interface

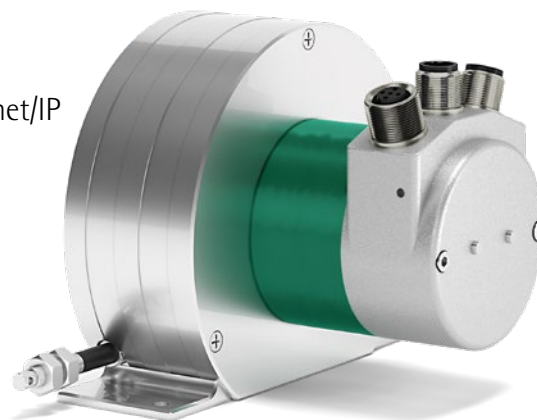
lika

Series

SFA-5000 FB • SFA-10000 FB



- Integrated absolute encoder
- Fieldbus interfaces: Profibus, CANopen, DeviceNet
Ethernet interfaces: Profinet, Powerlink, Modbus/TCP, EtherCAT, Ethernet/IP
- Programmable resolution up to 0,024 mm
- M12 or PG connections
- 5000 & 10000 mm measuring length
- Compact design & easy installation



SFA-5000 FB

ENVIRONMENTAL SPECIFICATIONS

Protection:	IP65
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS

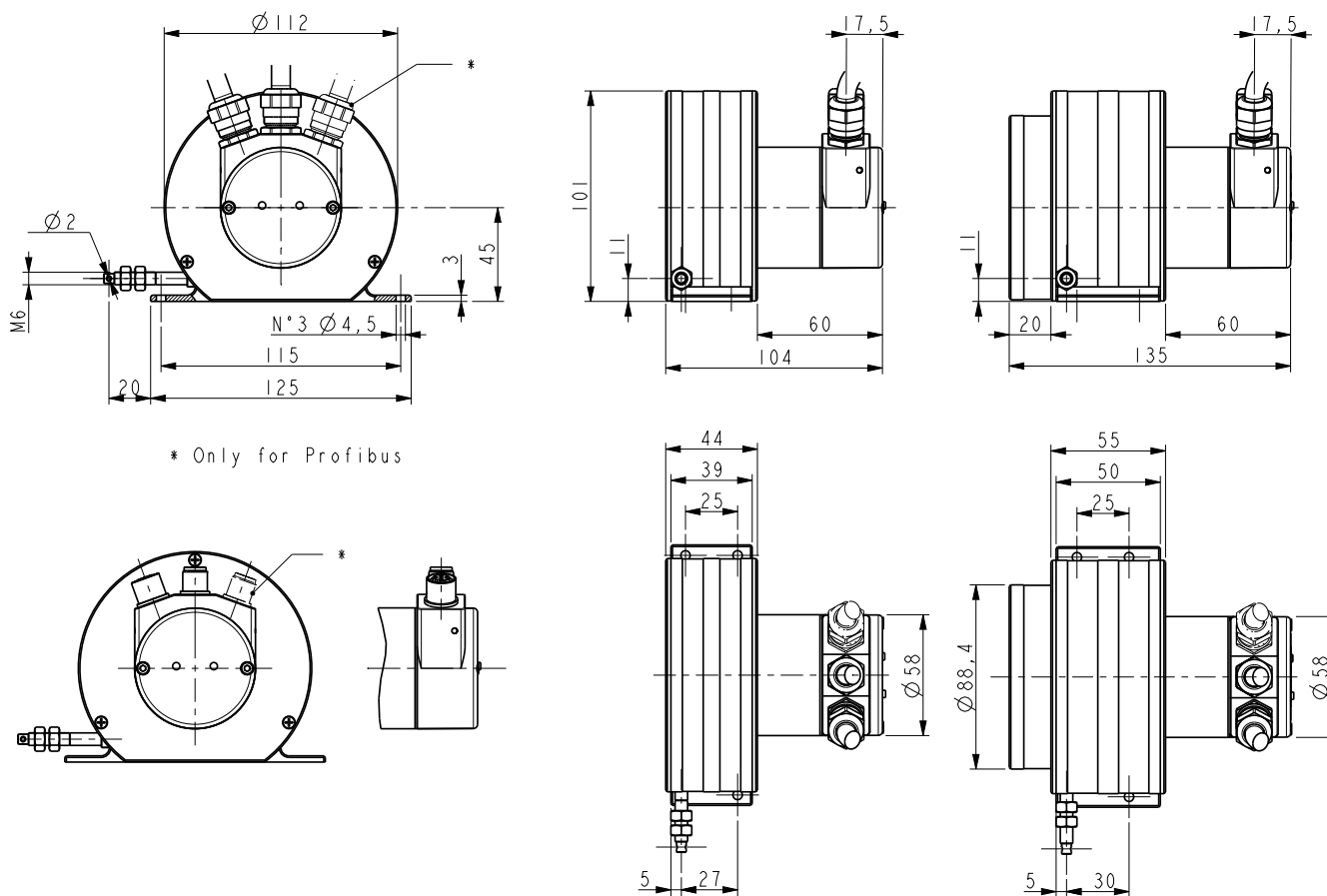
Dimensions:	see drawing
Measuring length:	5000, 10000 mm
Drum circumference:	200 mm
Linearity:	± 0,5 mm
Repeatability:	± 0,1 mm
Travel speed:	2 m/sec max.
Electrical connections:	M12 connectors or PG output
Weight:	~ 0,8 kg

ELECTRICAL SPECIFICATIONS

Resolution:	0,024 mm or scalable via fieldbus
Interface:	Profibus-DP V0, CANopen DS301-DS406, Devicenet Ethernet/IP, EtherCAT, Powerlink, Profinet IO, Modbus/TCP
Programmable parameters:	scaling, counting direction, preset/offset values
Power supply:	+10Vdc +30Vdc
Power consumption :	2,2 W
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Functions:	see user manual for each fieldbus

MATERIALS

Housing (draw-wire):	anticorodal, UNI EN AW-6082
Housing (encoder):	die cast aluminium, UNI EN AC-46100
Wire:	stainless steel, non magnetic - UNI EN 4305



SFA-5000 FB

SFA-10000 FB

Order code

SFA	-	XXXXX	-	XX	-	XXXX	-	XX
		(a)		(b)		(c)		(d)

(a) MEASURING LENGTH

5000 = 5000 mm
10000 = 10000 mm

(b) OUTPUT CIRCUIT

PB = Profibus-DP V0
CB = CANopen DS301, DS406
FD = DeviceNet
PT = Profinet IO
PL = Powerlink
EC = EtherCAT
EP = Ethernet/IP
MT = Modbus/TCP

(c) RESOLUTION

8192 = 0,024 mm

(d) CONNECTIONS

M12 = M12 connectors
PG = PG output (only PB, CB, FD)

ACCESSORIES

EC-M12MC-LK-CB-5:	CANopen/DeviceNet M12 plug cordset with 5 m cable	EC-M12MP-LK-PB-5:	Profibus M12 plug cordset with 5 m cable
EC-M12MC-LK-CB-10:	CANopen/DeviceNet M12 plug cordset with 10 m cable	EC-M12MP-LK-PB-10:	Profibus M12 plug cordset with 10 m cable
EC-M12FC-LK-CB-5:	CANopen/DeviceNet M12 connector cordset with 5 m cable	EC-M12FP-LK-PB-5:	Profibus M12 connector cordset with 5 m cable
EC-M12FC-LK-CB-10:	CANopen/DeviceNet M12 conn. cordset with 10 m cable	EC-M12FP-LK-PB-10:	Profibus M12 connector cordset with 10 m cable
EC-M12ME-EC-GN-5:	Ethernet M12 cordset with 5 m cable	EC-M12PP-LK-PBS-5:	M12 Power supply cordset 5 m (all types)
EC-M12ME-EC-GN-10:	Ethernet M12 cordset with 10 m cable	EC-M12PP-LK-PBS-10:	M12 Power supply cordset 10 m (all types)

DRAW-WIRE

Draw-wire support for encoders

lika

Series

SF-I • SF-A



- Compact and cost effective draw-wire unit for encoders
- Simple and reliable construction
- Fits incremental, absolute, analogue & fieldbus encoder
- Measurement range from 5000 to 6800 mm
- Drum circumference:
 - 200,0 mm for incremental encoder
 - 204,8 mm for absolute encoders



SF-I • SF-A

COMBINATIONS WITH ENCODERS

SF-I + CK58-H-500ZCU415R:	Incremental encoder, resolution 0,1 mm (after x 4)
SF-I + CK58-H-2000ZCU415R:	Incremental encoder, resolution 0,1 mm
SF-A + EMC5812/4096GS-15-RM2+EPFL121H:	SSI absolute encoder, resolution 0,05 mm
SF-A + EMC5812/16384PA-15-RM2:	Programmable analogue encoder
SF-A + AMC5812/4096PB-15 + CC-PB:	Profibus absolute encoder

ENVIRONMENTAL SPECIFICATIONS

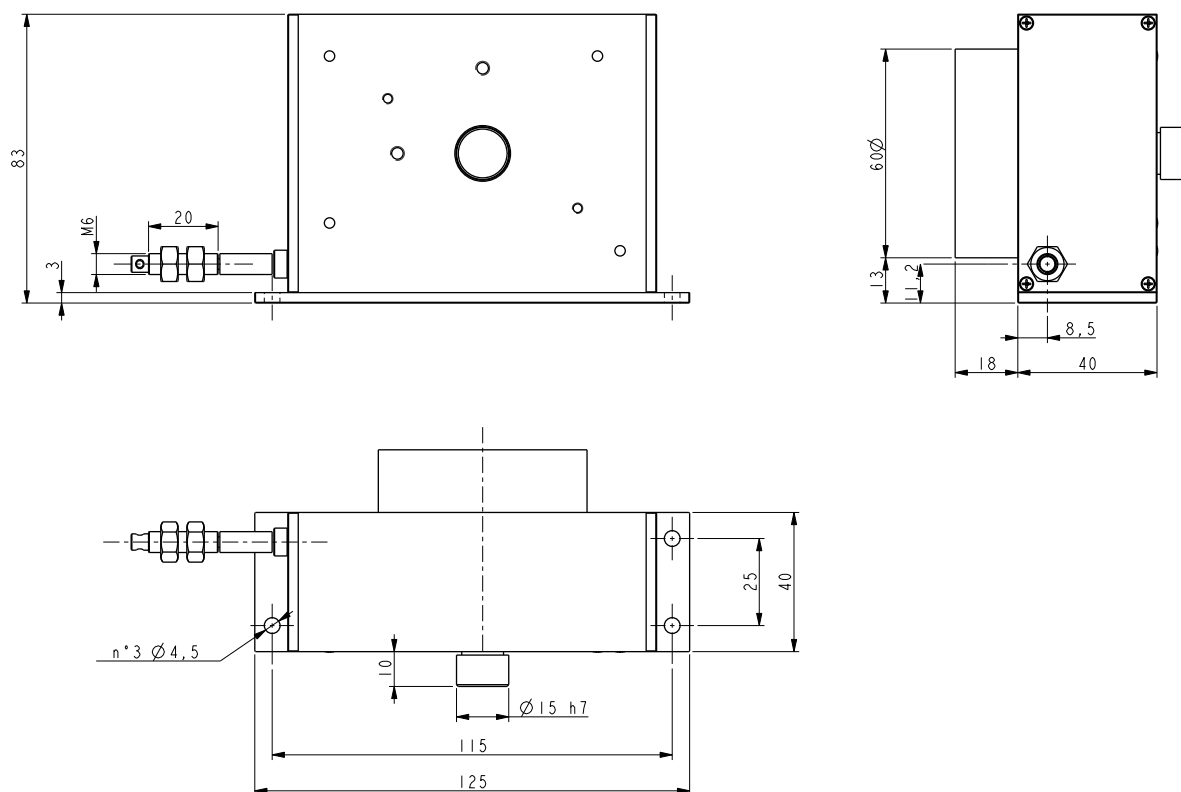
Operating temperature range:	-25°C +85°C (-13°F +158°F)
Protection:	see encoder

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Stroke per turn:	200 - 204,8 mm
Wire retraction force:	5 ÷ 15 N
Measuring length:	5000, 6800 mm
Measuring speed:	3 m/sec max.
Repeat accuracy:	± 0.15 mm
Weight:	~ 0,6 kg (without encoder)

MATERIALS

Housing:	anodized, UNI EN AW-6082
Wire:	stainless steel, non magnetic - UNI EN 4305



SF-I
SF-A

Order code

SF	-	X Ⓐ	-	XXXX Ⓑ
----	---	--------	---	-----------

Ⓐ STROKE PER TURN

I = 200 mm (for incremental encoders)
A = 204,8 mm (for absolute encoders)

Ⓑ MEASURING LENGTH

5000 = 5000 mm
6800 = 6800 mm

DRAW-WIRE

Draw-wire support for incremental & absolute encoders

lika

Series

SAK



- 10 or 15 m measurement length
- Robust aluminium housing with optional anticorrosive surface treatment
- Forced wire guidance and one layer winding
- ATEX encoder on request



SAK

SUITABLE ENCODERS

I58-H-3000ZCU46RL2:	Incremental encoder, 0.1 mm resolution, cable output
I58-H-3000ZCZ46R + EPFL121:	Incremental encoder, 0.1 mm resolution, connector output
HM5818/16384-PS-6:	Programmable SSI encoder, res. up to 0,01 mm
EM58 TA:	Programmable analogue output
AM5812/4096PB-6 + CC-PB:	Profibus encoder

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range:	-25° +85°C (-13°F +185°F)
Protection:	see encoder

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Stroke per turn:	300 mm
Wire retraction force:	10 ÷ 15 N
Measuring length:	10.000, 15.000 mm
Measuring speed:	10 m/sec max.
Acceleration:	4 m/s ² max.
Linearity:	± 0,05% FS max.
Weight:	~ 6-8 kg (without encoder)

MATERIALS

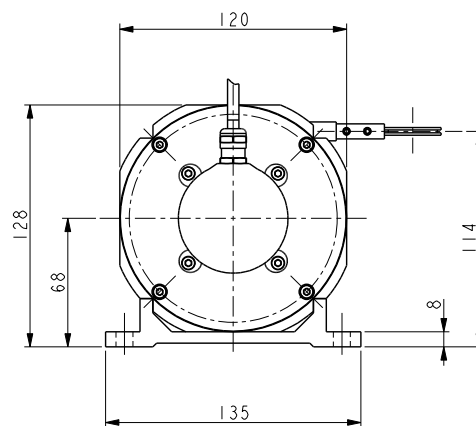
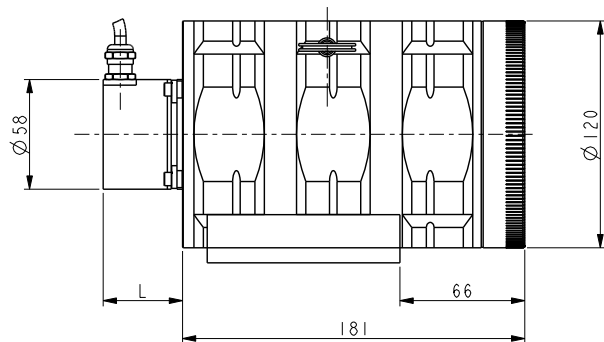
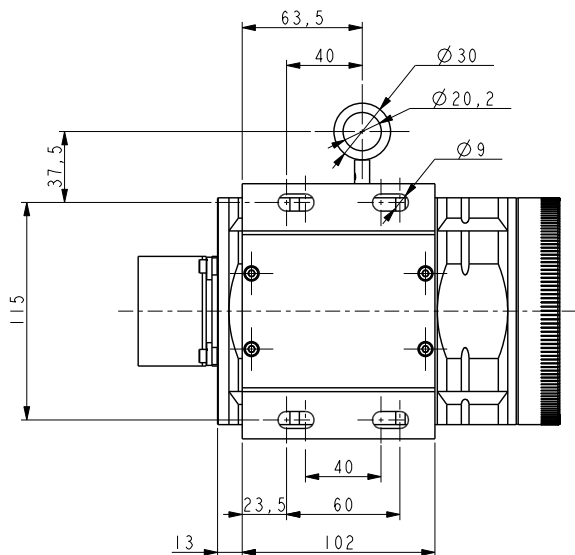
Housing:	Aluminium
Wire:	Stainless steel, ø 0,9 mm

Order code

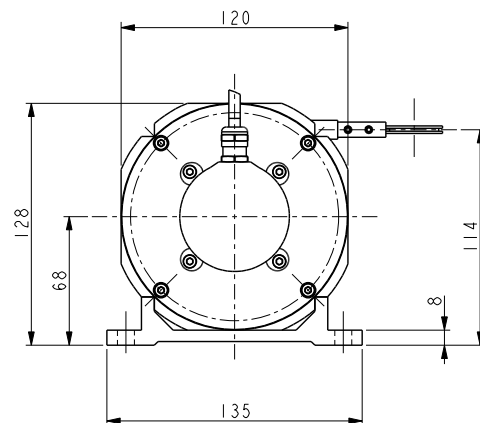
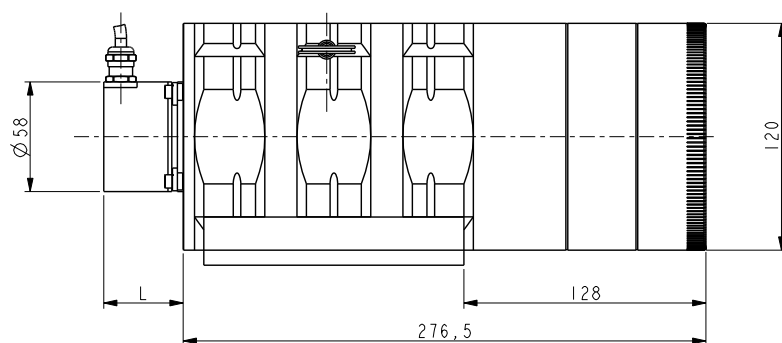
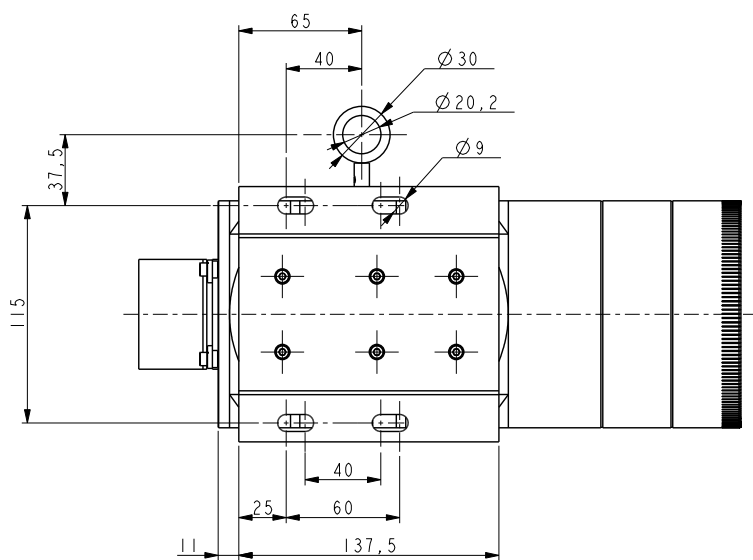
SAK	-	XXXXX Ⓐ
-----	---	------------

Ⓐ MEASURING LENGTH

10000 = 10000 mm
15000 = 15000 mm



SAK-10000



SAK-15000

DRAW-WIRE

Draw-wire support for incremental & absolute encoders

lika

Series

SBK



- From 20 to 50 m measurement length
- Robust aluminium housing
- Forced wire guidance and one-layer winding
- ATEX encoder on request
- Fits any encoders with servoflange



SBK

SUITABLE ENCODERS

I58-H-5000ZCU46RL2:	Incremental encoder, 0.1 mm resolution, cable output
I58-H-5000ZCZ46R + EPFL121:	Incremental encoder, 0.1 mm resolution, connector output
HM5818/16384-PS-6:	Programmable SSI encoder, res. up to 0,01 mm
EM58 TA:	Programmable analogue output
AM5812/4096PB-6 + CC-PB:	Profibus encoder

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range:	-25° +85°C (-13°F +185°F)
Protection:	see encoder

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Stroke per turn:	500 mm
Wire retraction force:	10 ÷ 30 N
Measuring length:	20.000, 30.000, 40.000, 50.000 mm
Measuring speed:	10 m/sec max.
Acceleration:	2 m/s ² max. (20, 30 m versions) 1 m/s ² max. (40, 50 m versions)
Linearity:	± 0,05% FS max.
Weight:	~ 12-13 kg (without encoder)

MATERIALS

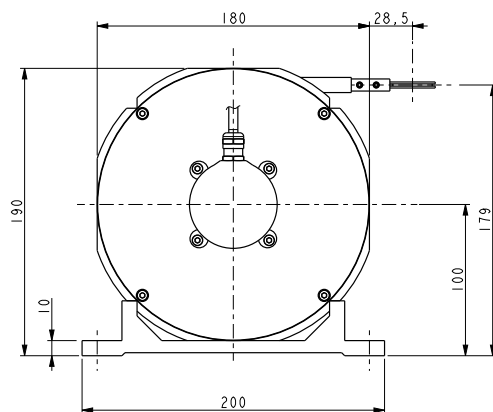
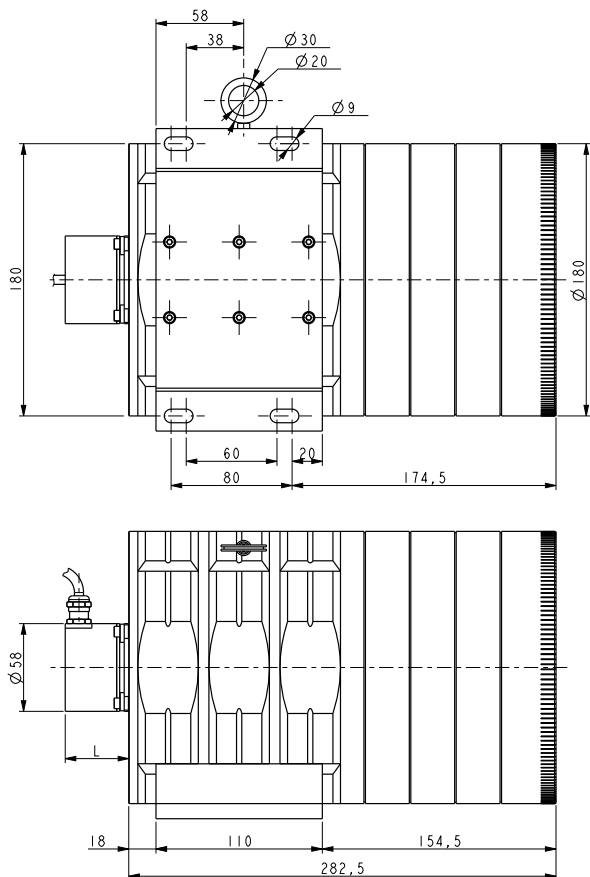
Housing:	Aluminium
Wire:	Stainless steel, ø 0,9 mm

Order code

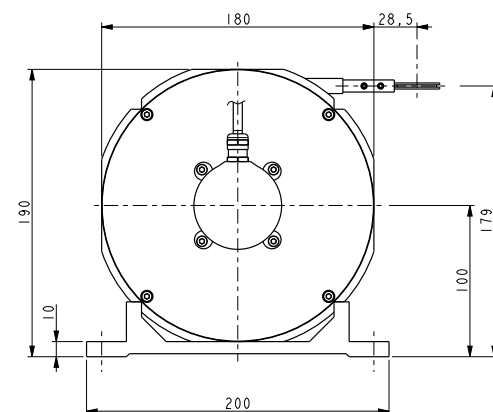
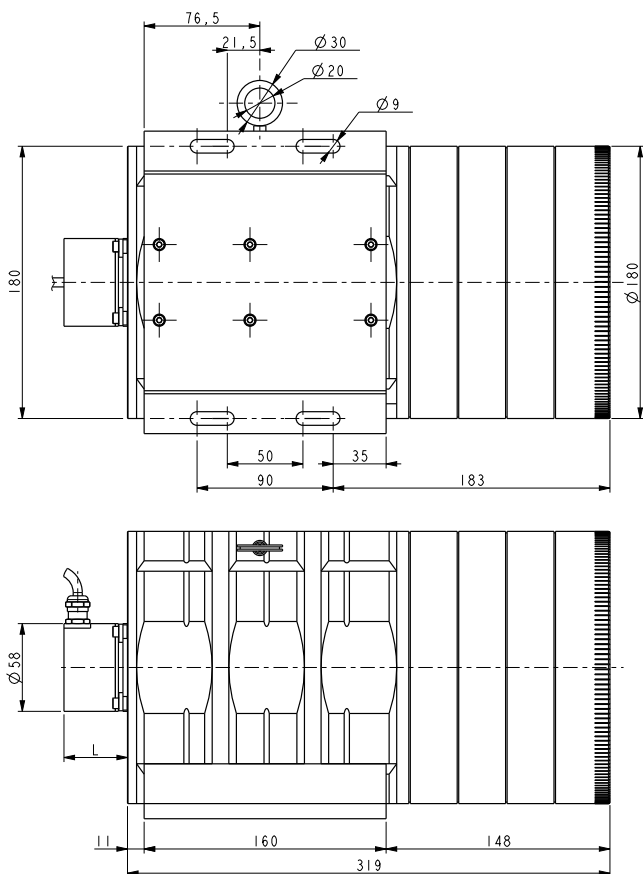
SBK	-	XXXXX Ⓐ
-----	---	------------

Ⓐ MEASURING LENGTH

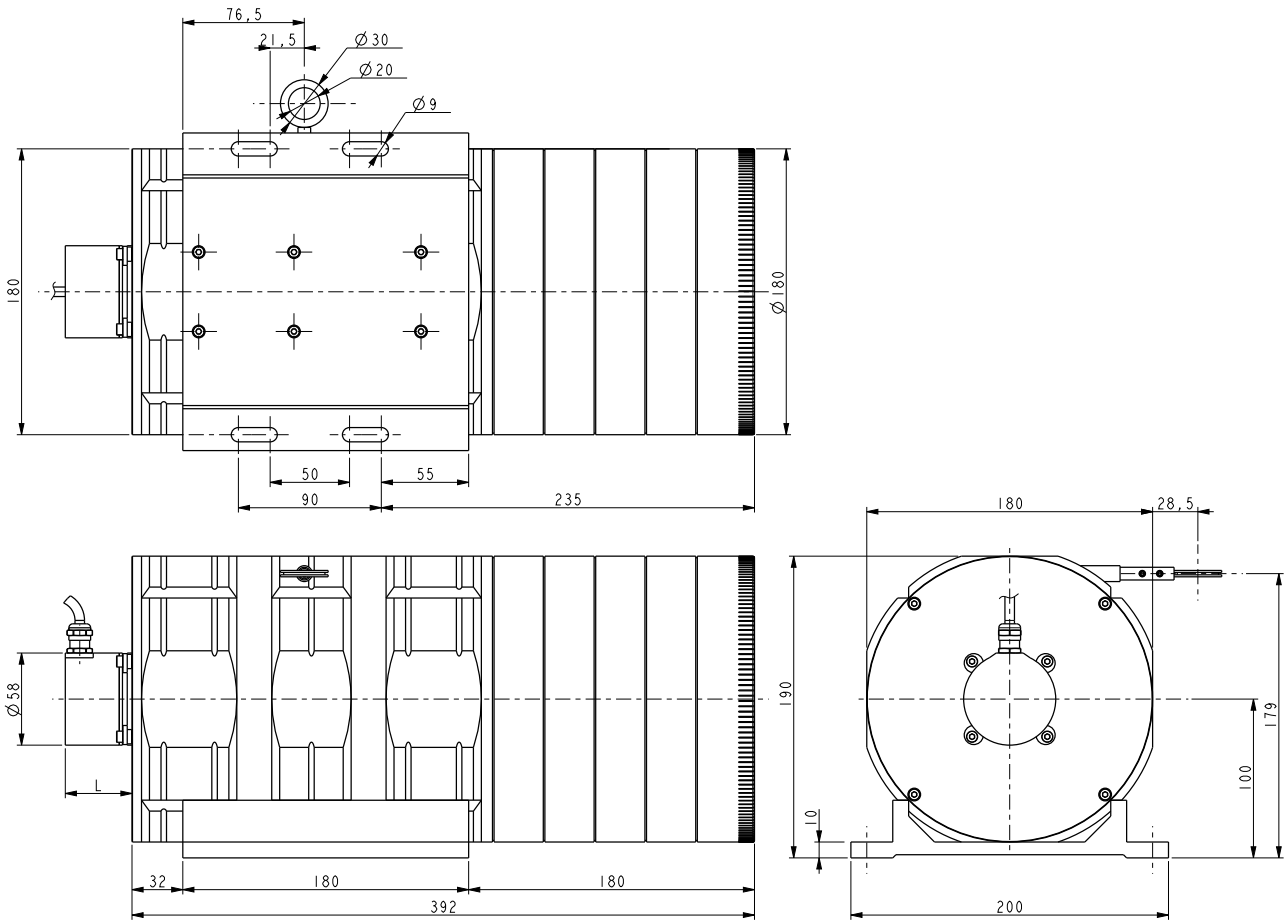
20000 = 20000 mm
30000 = 30000 mm
40000 = 40000 mm
50000 = 50000 mm



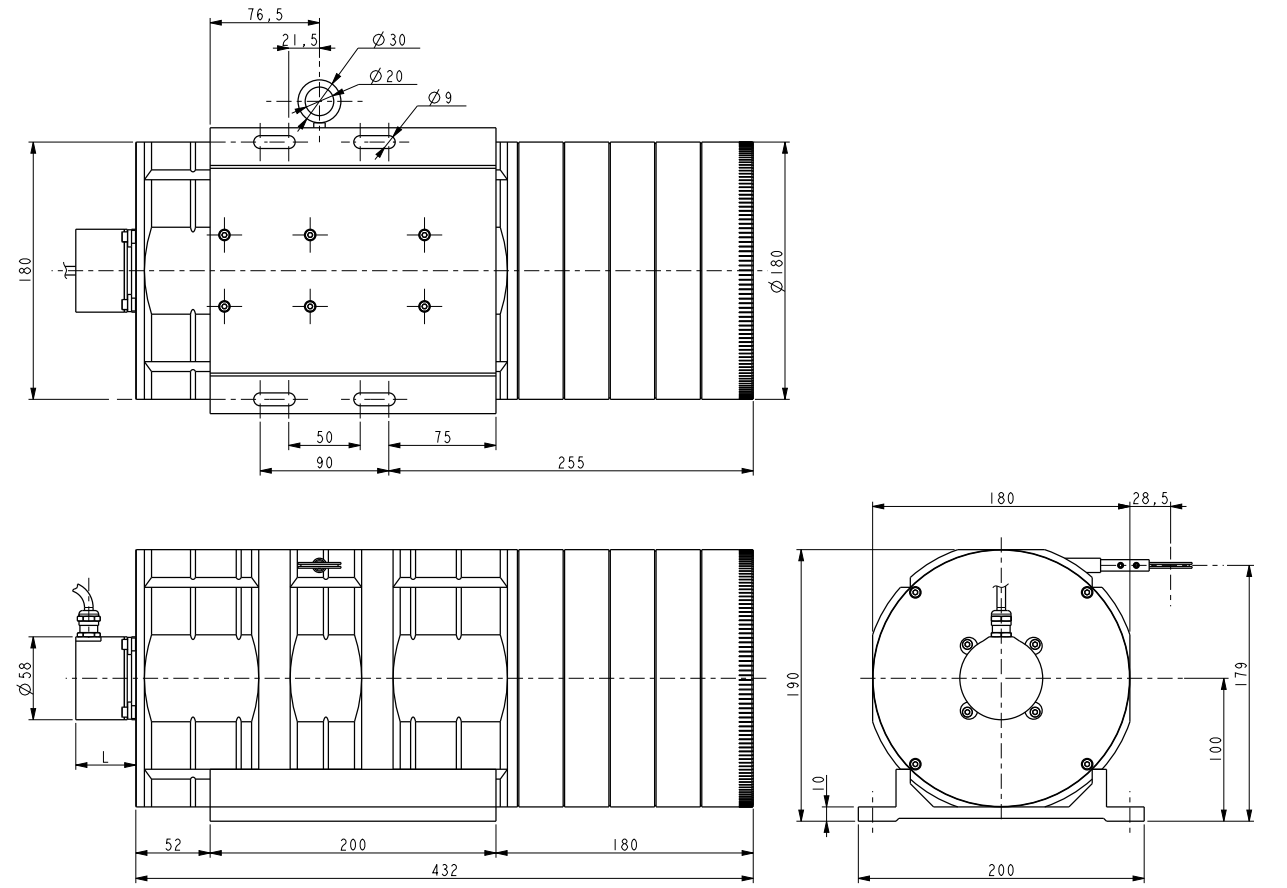
SBK-20000



SBK-30000



SBK-40000



SBK-50000

SFE	
Signals	I8 cable
A	Yellow
/A	Blue
B	Green
/B	Orange
0	White
/0	Grey
+Vdc	Red
0Vdc GND	Black

SFP	
Potentiometer	
Signals	I3 cable
Green	A (slider)
Red	C+
Black	C-

Analogue electrical connection		
Signals		I3 cable
AI1	AV2	
+10 +30Vdc	+15 +30Vdc	Red
not connected	0Vdc	Black
Iout	Vout	Green

SFA		
Signals	M12 8-pin	M8 cable
0Vdc	1	Black
+10Vdc +30Vdc	2	Red
Clock IN +	3	Yellow
Clock IN -	4	Blue
Data OUT +	5	Green
Data OUT -	6	Orange
Zero Setting	7	White
Not connected	8	Grey
Shield	Case	Shield

SFE-5000, SFE-10000		
Signals	M23 12-pin	M12 12-pin
A	1	3
/A	2	4
B	3	5
/B	4	6
0	5	9
/0	6	10
+5Vdc +30Vdc	7	2
0Vdc	8	1
Not connected	9	7
Not connected	10	8
SDA	11	11
Not connected	12	12
Shield	Case	Case

SFA-5000, SFA-10000			
Signals	M23 12-pin	M12 8-pin	A8 cable
Clock IN +	2	3	White
Clock IN -	1	4	Brown
Data OUT +	3	5	Green
Data OUT -	4	6	Yellow
Counting direction	8	8	Blue
Zero setting	9	7	Pink
0Vdc	12	1	Black
+7.5Vdc +34Vdc	11	2	Red
Shield	Case	Case	Shield

SFA-5000 TA, SFA-10000 TA		
Signals	A8 cable	M12 5-pin
+Iout / +Vout	Brown	1
+13Vdc +30Vdc	Red	2
0Vdc	Black	3
START ►	Pink	4
STOP ■	Green	5
Analogue 0V	White	-
FAULT	Blue	-
Shield	Shield	Case

For SF-I, SF-A, SFA-5000 FB, SFA-10000 FB, SAK and SBK connections, please refer to the encoder's user manual.

Global presence makes us close to our customers



- **Lika Factories & Sales**

- Lika Electronic
Headquarters Italy

- Lika South East Asia
Factory Thailand

- Lika USA
North America Sales

- Lika Gotec
Germany Sales

- Lika Yuting
China & Taiwan Sales

- **Global sales partners network**



Smart encoders & actuators

Lika Electronic Srl

Via S. Lorenzo, 25
36010 Carré (VI) • Italy
Tel. +39 0445 806600
Fax +39 0445 806699
info@lika.it • www.lika.biz

Asia branch

Lika South East Asia Co. Ltd
Tambon Banlen • Amphur Bangpa-In
Ayutthaya 13160
Thailand
Tel. +66 (0) 3535 0737
Fax +66 (0) 3535 0789
info@lika.co.th • www.lika.co.th

