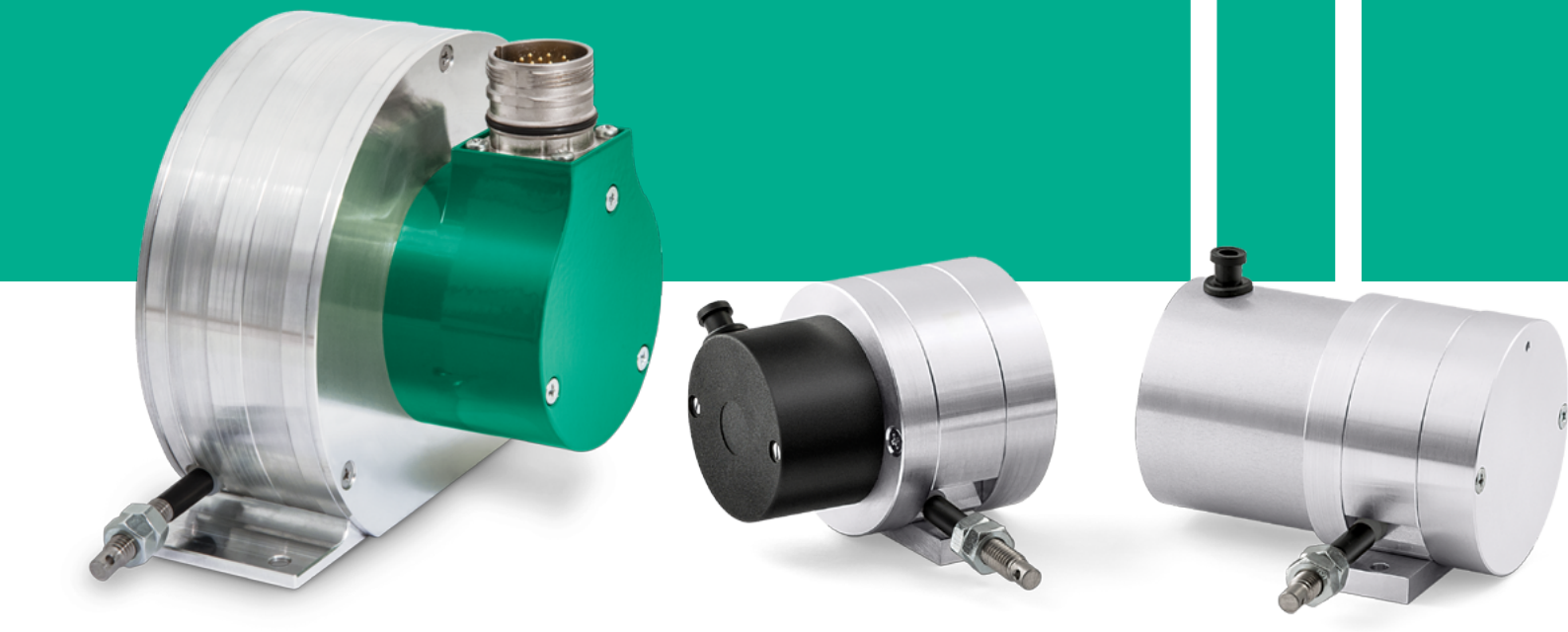
lika

Smart encoders & actuators



Draw-wire encoders 2016

ROTAPULS

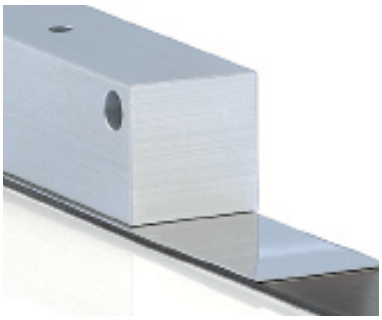
Incremental rotary encoders

ROTACOD

Absolute rotary & Fieldbus encoders

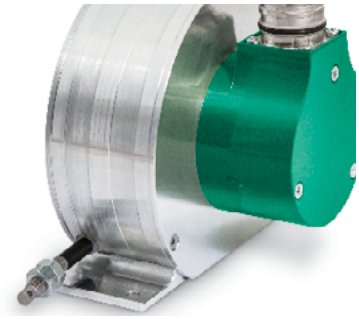
ROTAMAG

Rotary Magnetic encoder &
Encoder modules



LINEPULS – LINECOD

Linear Absolute & Incremental encoders



DRAW-WIRE

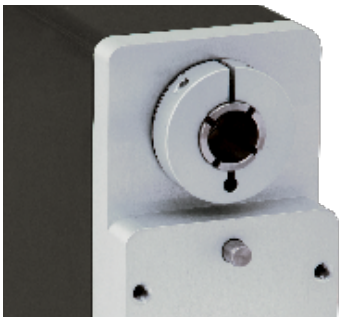
Draw-wire encoders & potentiometers

COUPLINGS

Flexible & Transmission couplings

POSICONTROL

Displays & Signal converters
Encoder Interfaces



DRIVECOD

Rotary Actuators & Positioning units

30th 30 YEARS YOUNG 1982.2012

1982
Lika Electronic founded in Schio (VI).

1983
Lika numbers 8 customers.

1985
Lika starts the production of absolute encoders for the German market.

1986
Manufacturing of absolute encoders with integrated display and incremental encoders for the Italian market.

1987
Lika produces a 50 mm diameter miniature encoder, the smallest absolute encoder in Europe.

1993
Lika Electronic is the first company in Italy to offer a complete portfolio of encoders in the 58 mm diam. range.

1995
The 100,000th encoder rolled off the production line.

1996
ROTACAM ASR58 is the first absolute encoder fitted with integrated cam programmer.

1997
Lika is first certified to ISO 9001:1994.

1982 1986 1990 1995

An international family company, corporate profile

Lika Electronic stands for encoders and position measuring systems. Since its inception in 1982, Lika Electronic develops and manufactures *incremental and absolute, optical and magnetic, rotary and linear encoders, incremental & absolute sensors, linear and rotary incremental & absolute magnetic measurement systems, rotary actuators, displays, signal converters and encoder interfaces.*

Starting as a family-owned business, thanks to its technical competence and comprehensive know-how in the automation industry along with the high quality standards and the skill in providing solutions that target specific customer needs, over the years **Lika Electronic has grown becoming a forward thinking innovative and global company** and has become one of the leading manufacturers of optical encoders and magnetic measurement systems in Europe and worldwide.
Many key features include the extensive technical engineering skills , in-depth knowledge and expertise in digital and analogical electronic design as well as the proven daily practice in co-operation with universities, research institutions and customers in order to **develop and provide advanced electronic equipment and high-tech materials & devices tailored to specific customer and market requirements**. Moreover software development and mechanical & optical components design are entirely performed within the company. Often production machinery and tools are often engineered and built internally to satisfy specific needs and performances.

Every day Lika Electronic is committed to being a step ahead and always at the forefront of innovation, looking to the future with the enthusiasm that steers the company towards new opportunities *without giving up the strength of being an international family company.*

Lika Electronic is certified for compliance with ISO 9001:2000 quality management system and is now committed to adopt an environmental management system complying with ISO 14001:2004 requirements. All Lika's products are designed and manufactured to fully meet the requirements of CE, RoHS and REACH directives, most of them are UL and CSA compliant too. ATEX certified solutions suitable to be integrated into potential explosive environments and hazardous areas are also available.

Global presence, make us closer to the customer

Every day, everywhere Lika Electronic works in close contact with its customers to build strong, long-lasting relationships and support them at all times in each day-to-day requirement. Lika's actions focus on customers' needs with daily challenges to develop reliable and cutting edge solutions *Continuous innovation, outstanding expertise, overall quality, prompt action and maximum flexibility* are the fundamental values that Lika Electronic is truly proud of offering its customers when working together.

The Rosetta space mission

Lika is proud to be part of the international team of companies that, under the guide of the **European Space Agency (ESA)** has allowed to achieve this historic result. Visit our website for full information.

Lika Electronic operates all over the world providing a widespread and efficient global distribution network, offering unrivalled technical support and excellent customer service. At the present time the export share is approximately 60% of the turnover in more than 50 countries.

2000
ROSETTA space probe project gets under way in co-operation with CISAS.

2002
Production in antistatic environment (ESD). DRIVECOD & POSICONTROL product ranges are launched in the market.

2007
Lika Electronic celebrates its 25th anniversary.

2012
30th anniversary: "30 new products for our 30 years" event launched.

2015
Certificate ISO 14001:2004

2000 2004 2008 2012 2015

1998
First 16-bit resolution single-turn absolute encoder engineered for installation in aerostatic probes developed by Florence University.

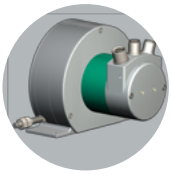
2004
Arianne 5 rocket successfully launched: Rosetta probe fits Lika encoders.

2008
ALMA project: giant array of 12-m radio telescopes equipped with special custom-made Lika encoders.

2010
Lika introduces the innovative range of heavy-duty products dedicated to steel & iron industry and wind mills.

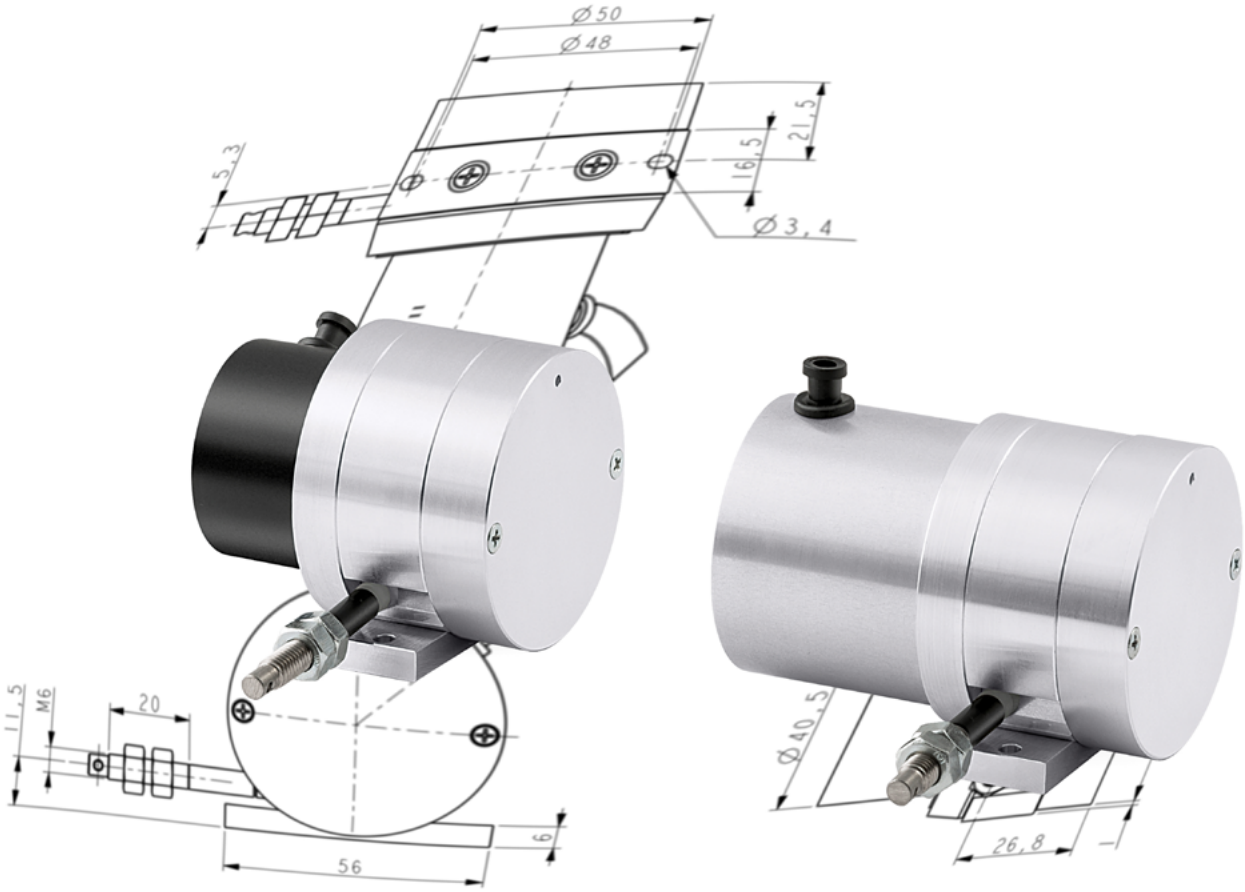
2013
Lika South East Asia founded in Thailand.

DRAW WIRE incremental & absolute wire encoders

		Measurement length max. (mm)	Stroke per turn (mm)	Measuring speed max. (m/sec)	Sensor		Potentiometer Analogue	Incremental encoder	Absolute encoder	Fieldbus encoder	Atex encoder
					integrated	external					
	**SFP** Compact wire-potentiometer with ohmic or analogue output.	2000	100	2	•		•				
	**SFE** Compact wire- encoder with incremental output.	2000	100	2	•			•			
	**SFE-5000, SFE-10000** Programmable incremental wire-encoder, 5 & 10m length.	10000	200	2	•			•			
	**SFA** Compact wire-encoder with absolute output.	2000	100	2	•				•		
	**SFA-5000, SFA-10000** Absolute wire-encoder, 5 & 10m length	10000	200	2	•				•		
	**SFA-5000 TA, SFA-10000 TA** Wire-encoder with analogue output & teach-in buttons. 5 & 10m length.	10000	200	2	•		•				
	**SFA-5000 FB, SFA-10000 FB** Wire-encoder with Profibus, Profinet, Powerlink, EtherCAT, Modbus/TCP, CANopen and Devicenet interface	10000	200	2	•					•	
	**SF-I, SF-A** Draw-wire units for incremental & absolute encoders, 5 & 6,8m length.	6800	200 204,8	2,5		•	•	•	•	•	
	**SAK-10000, SAK-15000** Robust draw-wire units with reinforced winding mechanism.	15000	300	10		•	•	•	•	•	•
	**SBK-20000, SBK-30000 SBK-40000, SBK-50000** Robust draw-wire units with reinforced winding mechanism.	50000	500	10		•	•	•	•	•	•

Index

DRAW WIRE encoders



DRAW WIRE

Miniature wire actuated transducer

Series **SFP**

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

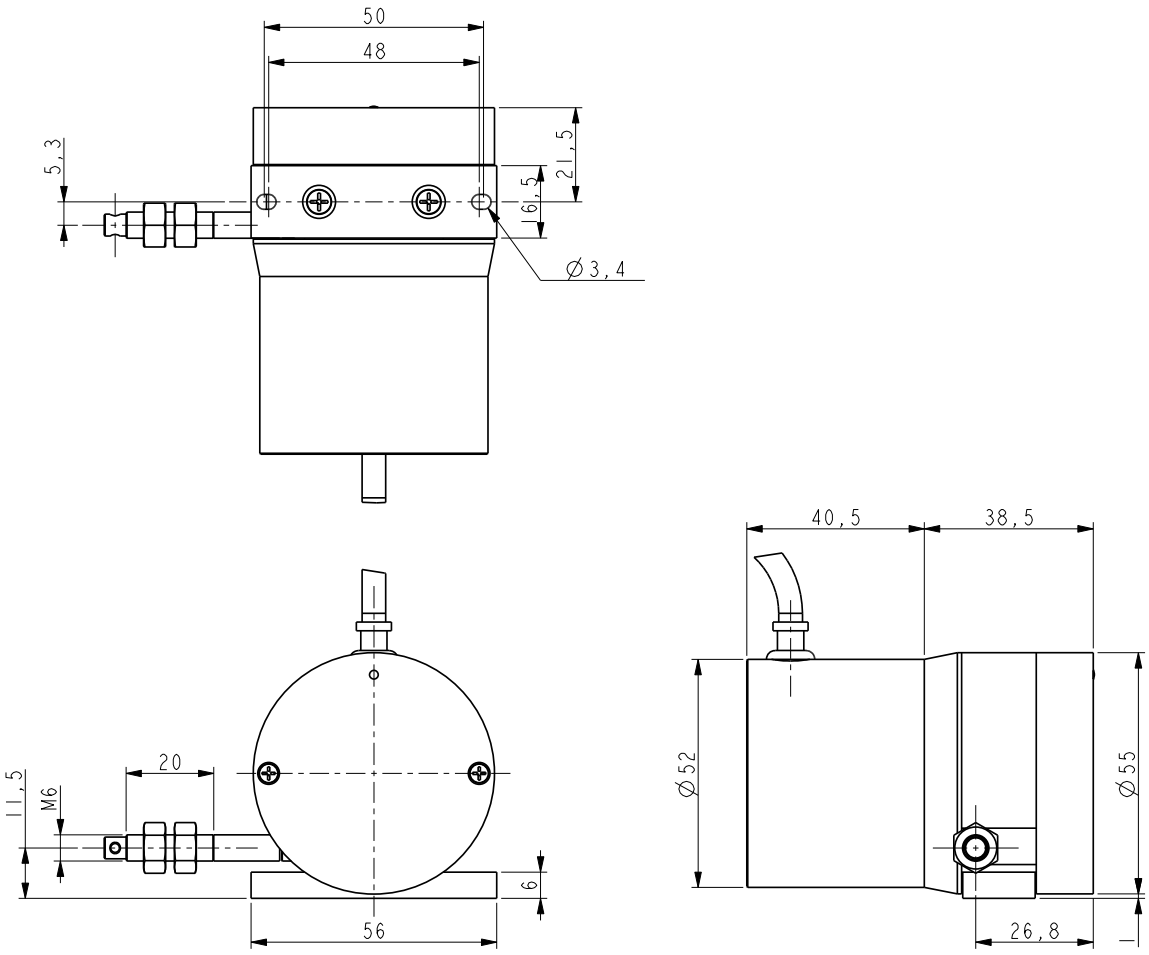
SFP

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	ⓑ OUTPUT	ⓒ CABLE LENGTH
300 = 300 mm	**AI1** = current output 4 -20mA	**L2** = cable output 2 m
500 = 500 mm	**AV2** = voltage output 0-10V	**L4** = cable output 4 m
1000 = 1000 mm	**1** = resistance output 1 kΩ	**Lx** = cable length on request
1500 = 1500 mm	**5** = resistance output 5 kΩ	
2000 = 2000 mm	**10** = resistance output 10 kΩ	
	20 = resistance output 20 kΩ	

DRAW WIRE

Miniature draw wire encoder

Series **SFE**

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

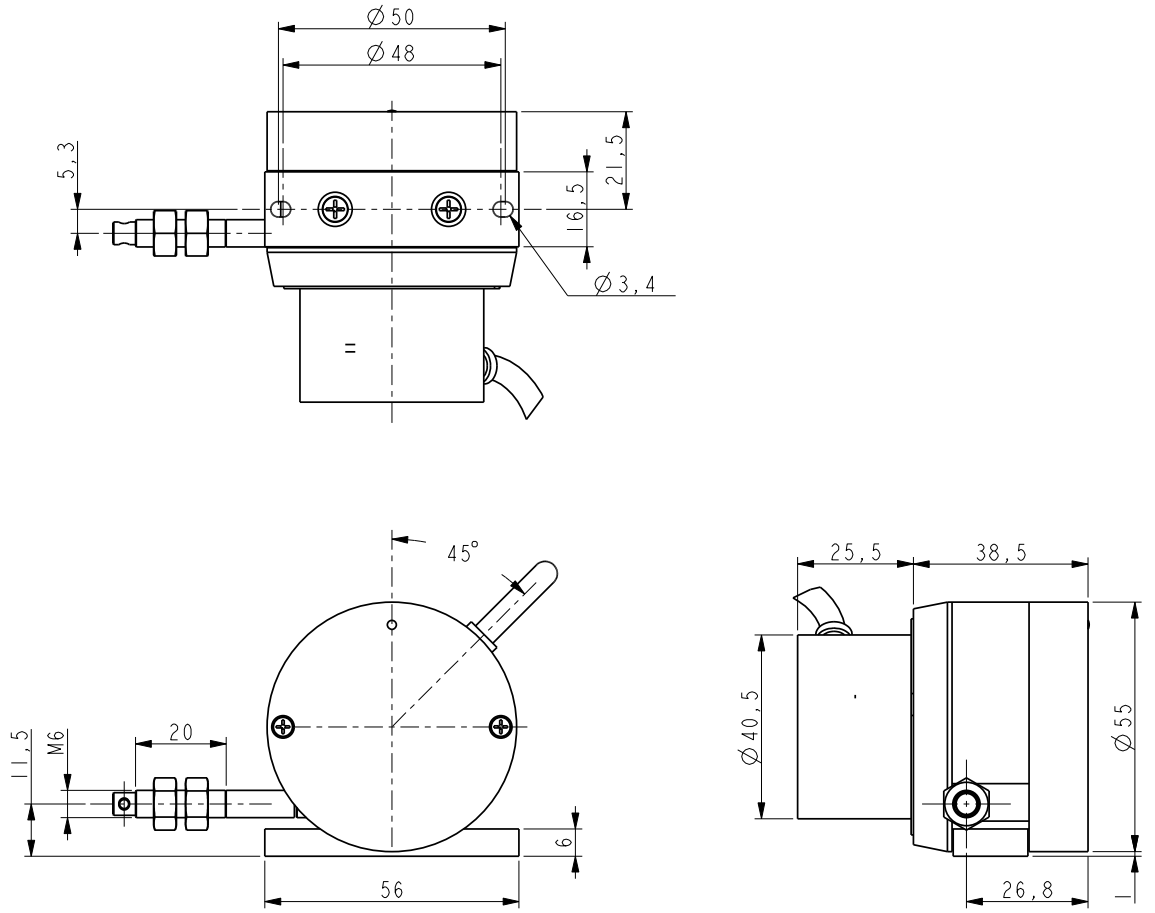
SFE

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

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

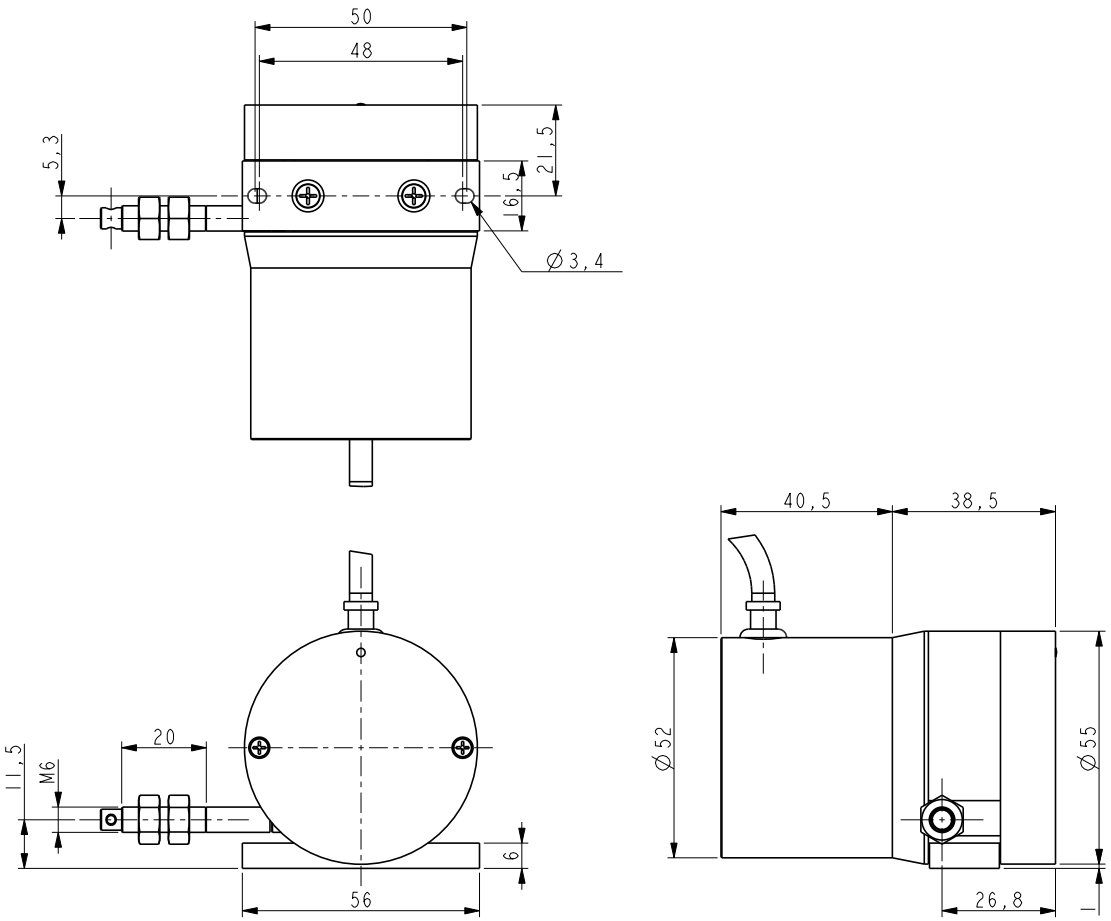
ENVIRONMENTAL SPECIFICATIONS	
Operating temperature range:	-25°C + 85°C (-13°F + 185°F)
Protection:	IP64

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 alligned, 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

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

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 mm

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)

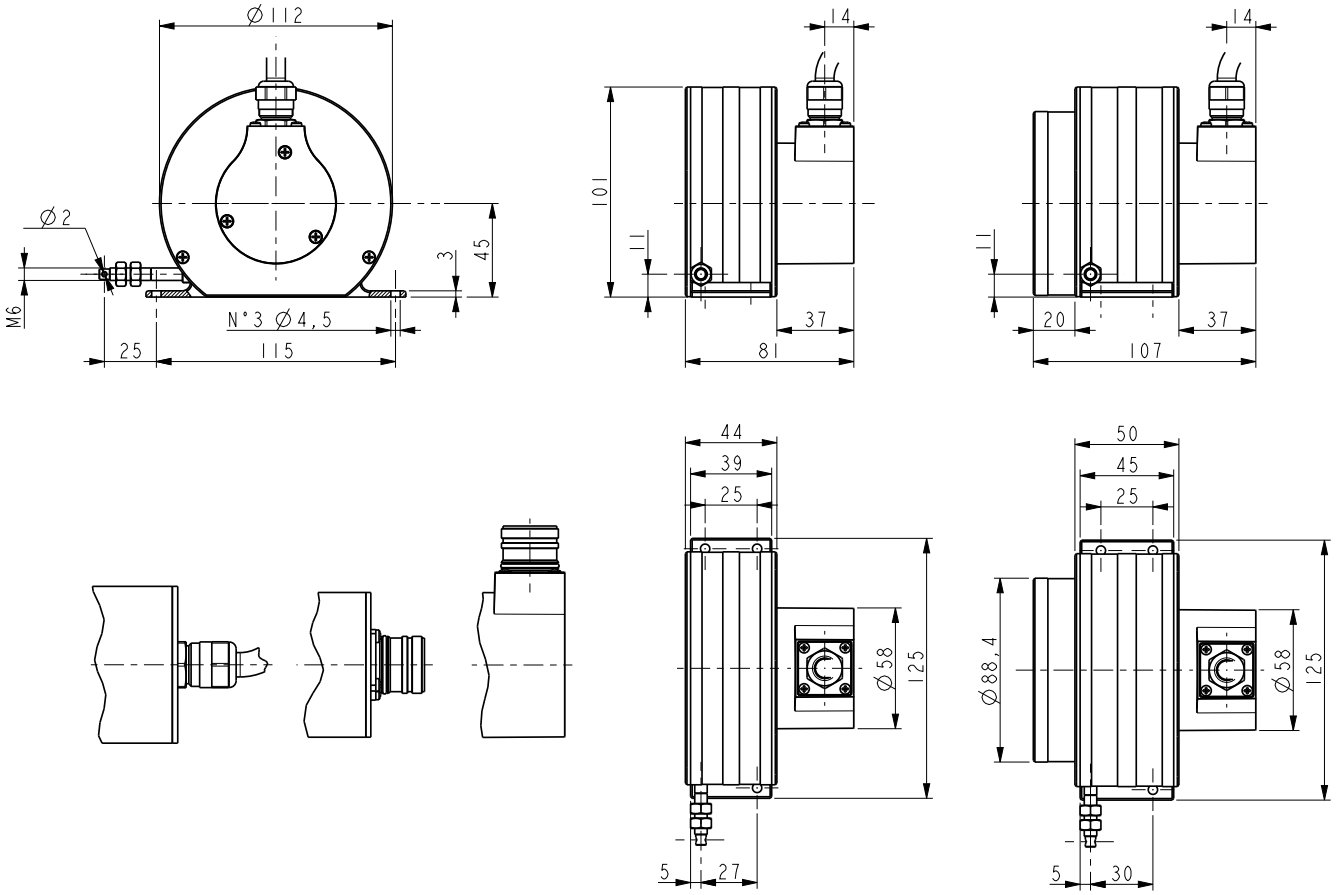
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Drum circumference:	200 mm
Wire retraction force:	5000: 3,2 ÷ 6,5 N 10000: 3,2 ÷ 6 N
Measuring length:	5000, 10000 mm
Linearity:	± 0,5 mm
Repeatability:	± 0,1 mm (or ± 1 digit with resolution <2000)
Measuring speed:	2 m/sec max.
Weight:	~ 0,8 kg
Connections: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

ⓐ **MEASURING LENGTH**
5000 = 5000 mm
10000 = 10000 mm

ⓑ **OUTPUT CIRCUIT**
H = PP/LD universal circuit

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

ⓓ **POWER SUPPLY**
4 = +5Vdc +30Vdc

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **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

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

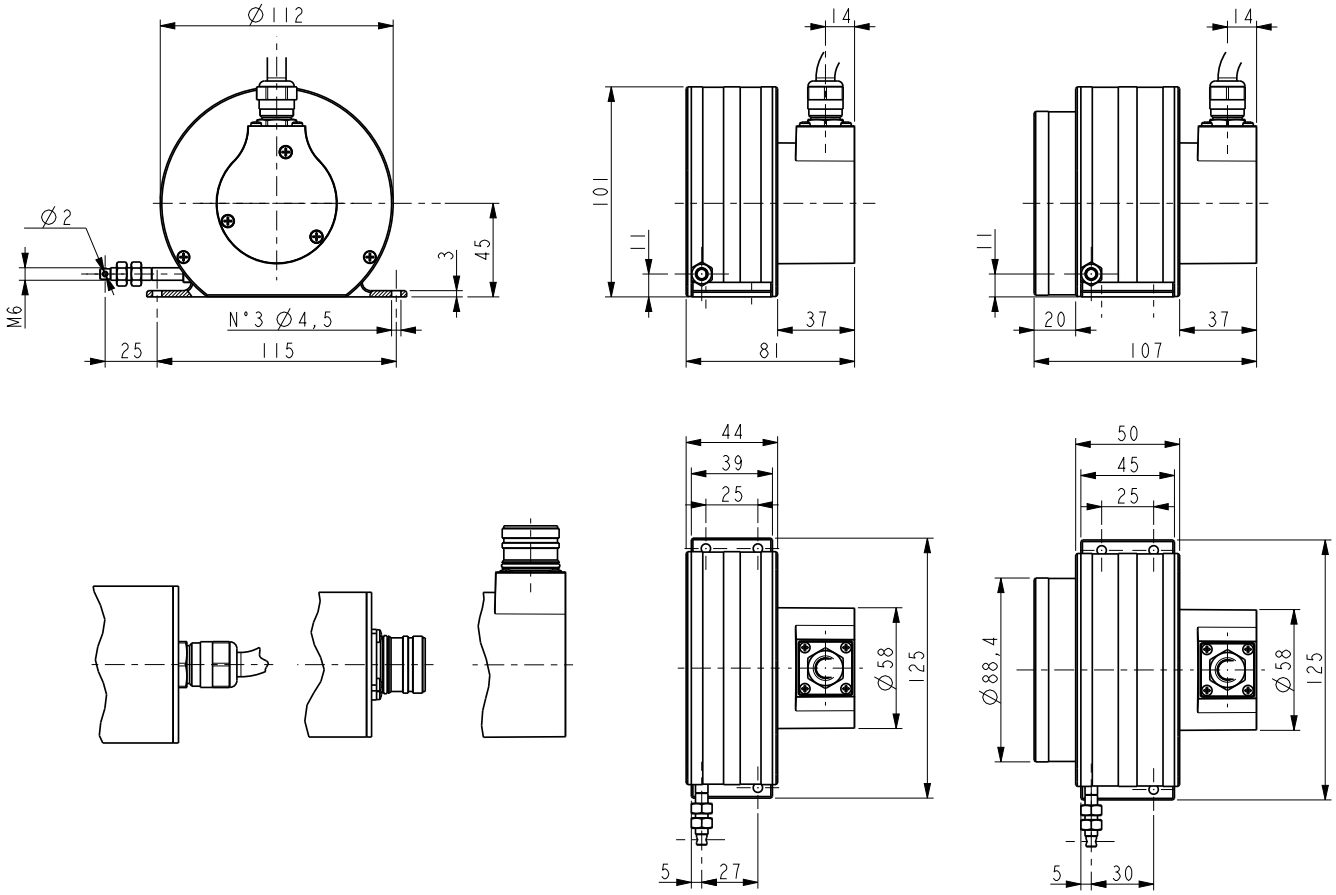
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

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:	• counting direction (input) • Zero setting/Preset (input)

MATERIALS	
Housing (draw wire):	anticorodal, UNI EN AW-6082
Housing (encoder):	die cast alluminium, 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	-	XXXXX ⓐ	-	X ⓑ	-	XXXX ⓒ	-	X ⓓ	XX ⓔ

ⓐ **MEASURING LENGTH**
5000 = 5000 mm
10000 = 10000 mm

ⓑ **OUTPUT CIRCUIT**
BA = SSI, binary code, LSB aligned
GA = SSI, gray code, LSB aligned

ⓒ **RESOLUTION**
8192 = 0,024 mm
4000 = 0,05 mm
2000 = 0,1 mm

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓔ **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

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

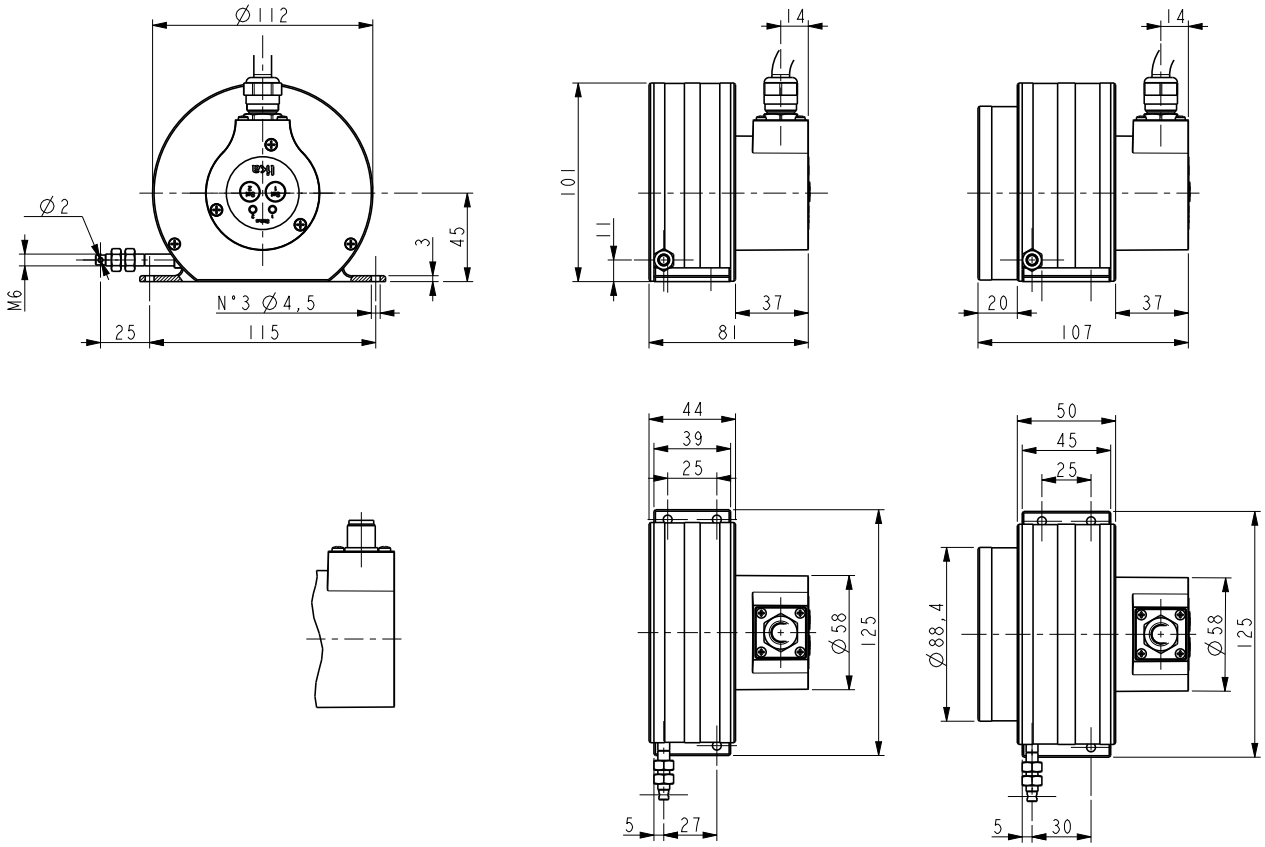
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

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

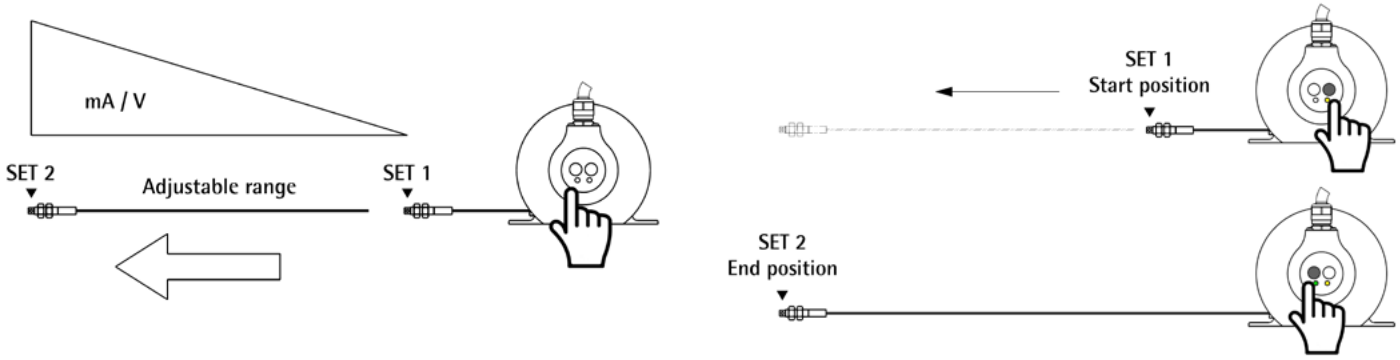
MATERIALS	
Housing (draw wire):	anticorodal, UNI EN AW-6082
Housing (encoder):	die cast alluminium, UNI EN AC-46100
Wire:	stainless steel, non magnetic - UNI EN 4305

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



SFA-5000 TA

SFA-10000 TA



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

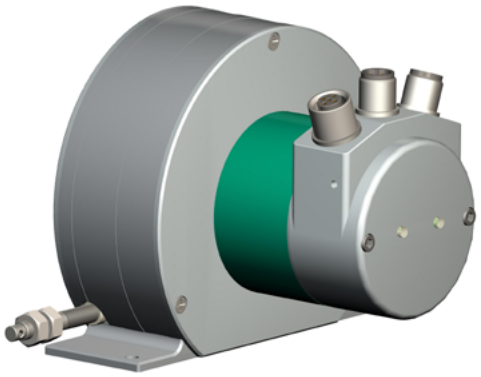
ⓔ CONNECTIONS
L1 = 1 meter
Lx = cable output x meters
M = M12 5 pin plug

DRAW WIRE

Absolute draw wire encoder with fieldbus interface

Series **SFA-5000 FB • SFA-10000 FB**

- Integrated absolute encoder
- Profibus, CANopen and Devicenet interface
- Programmable resolution up to 0,024 mm
- M12 or PG connections
- 5000 & 10000 mm measuring length
- Compact design & easy installation



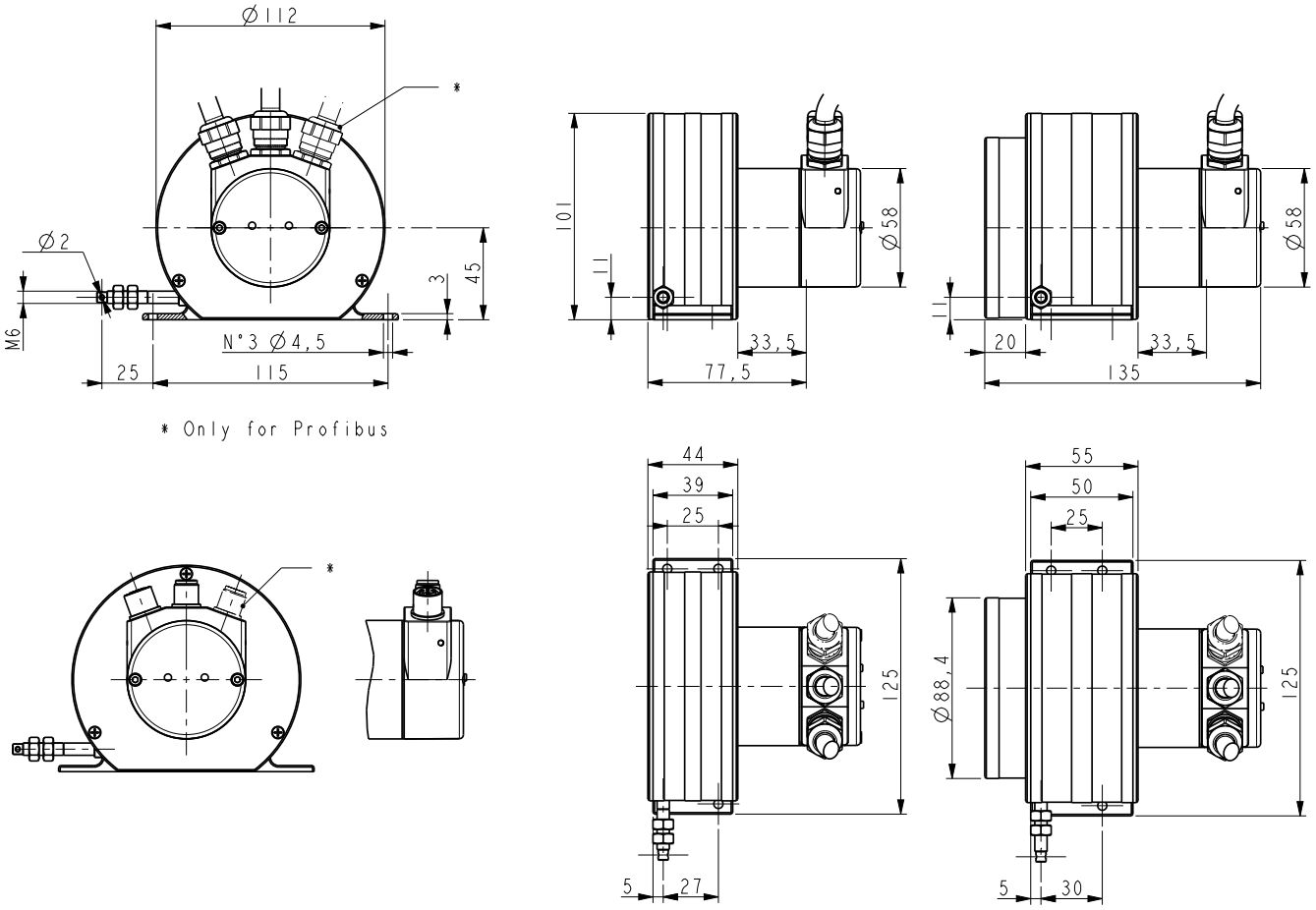
SFA-5000 FB

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 EtherCAT, Powerlink , Profinet IO
Programmable parameters:	scaling, counting direction, preset/offfset values
Baudrate:	programmable by Dip switches
Device address:	programmable by Dip switches
Power supply:	+7,5Vdc +34Vdc
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 alluminium, 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 ⓓ

ⓐ **MEASURING LENGTH**
5000 = 5000 mm
10000 = 10000 mm

ⓑ **OUTPUT CIRCUIT**
PB = Profibus-DP V0
PT = Profinet IO
PL = Powerlink
EC = EtherCAT
CB = CANopen DS301, DS406
FD = Devicenet

ⓒ **RESOLUTION**
8192 = 0,024 mm

ⓓ **CONNECTIONS**
M12 = M12 connectors
PG = PG output

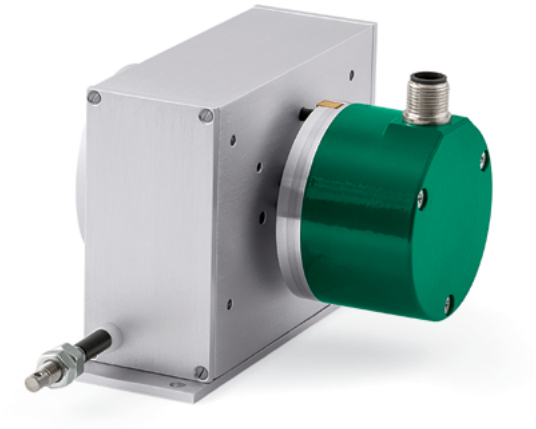
ACCESSORIES			
EC-M12MC-LK-CB-5:	CANopen/Devicenet M12 plug cordset with 5 m cable	EC-M12MP-LK-PB-5:	Profibus M12 plug cordset with 5 m cable
EC-M12MC-LK-CB-10:	CANopen/Devicenet M12 plug cordset with 10 m cable	EC-M12MP-LK-PB-10:	Profibus M12 plug cordset with 10 m cable
EC-M12FC-LK-CB-5:	CANopen/Devicenet 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:	EtherCAT/Profinet/Powerlink M12 cordset with 5 m cable	EC-M12PP-LK-PBS-5:	M12 Power supply cordset 5 m (all types)
EC-M12ME-EC-GN-10:	EtherCAT/Profinet/Powerlink 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

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



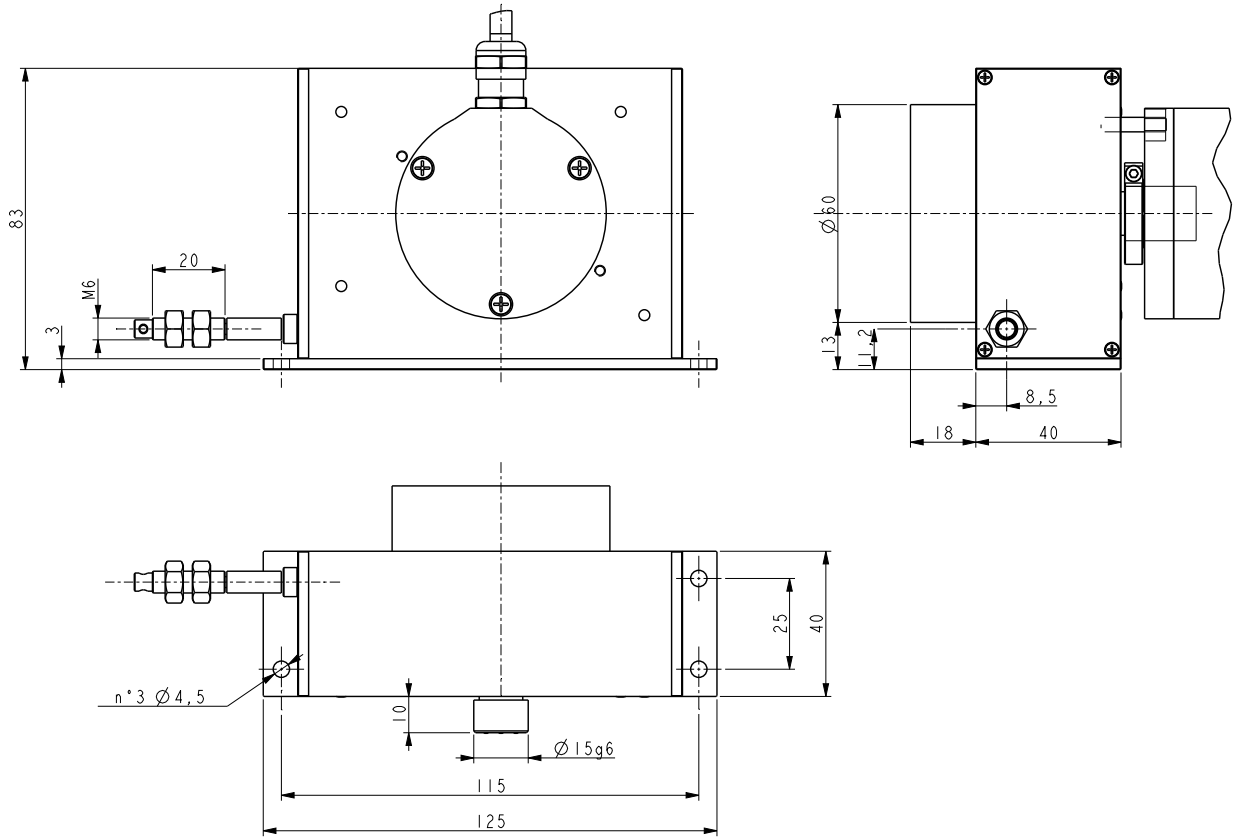
SF-I
SF-A

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)

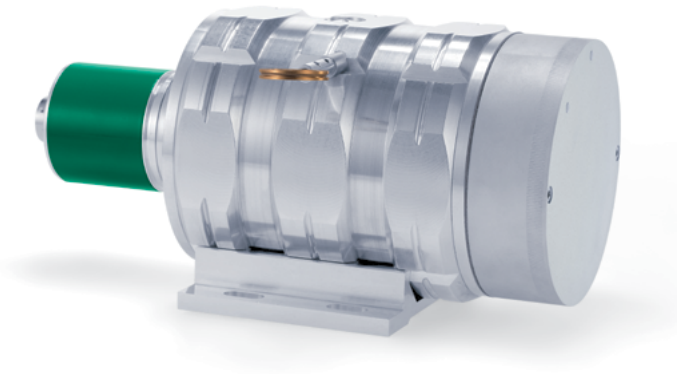
ⓑ **MEASURING LENGTH**
5000 = 5000 mm
6800 = 6800 mm

DRAW WIRE

Draw-wire support for incremental & absolute encoders

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

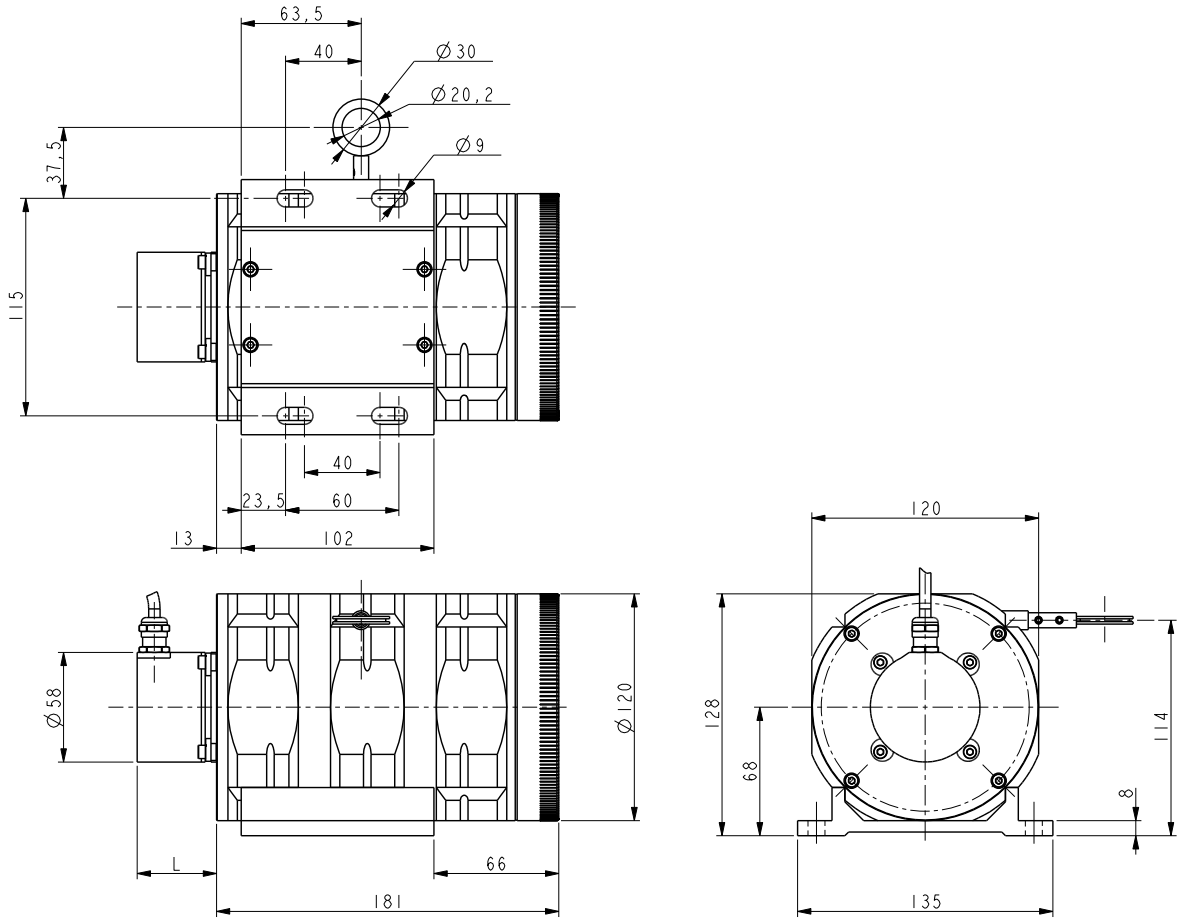
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Stroke per turn:	300 mm
Wire retraction force:	10 ÷15 N
Measuring length:	10.000, 15.000 mm
Measuring speed:	10 m/sec max.
Acceleration:	4 m/s² max.
Linearity:	± 0,05% FS max.
Weight:	~ 6-8 kg (without encoder)

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

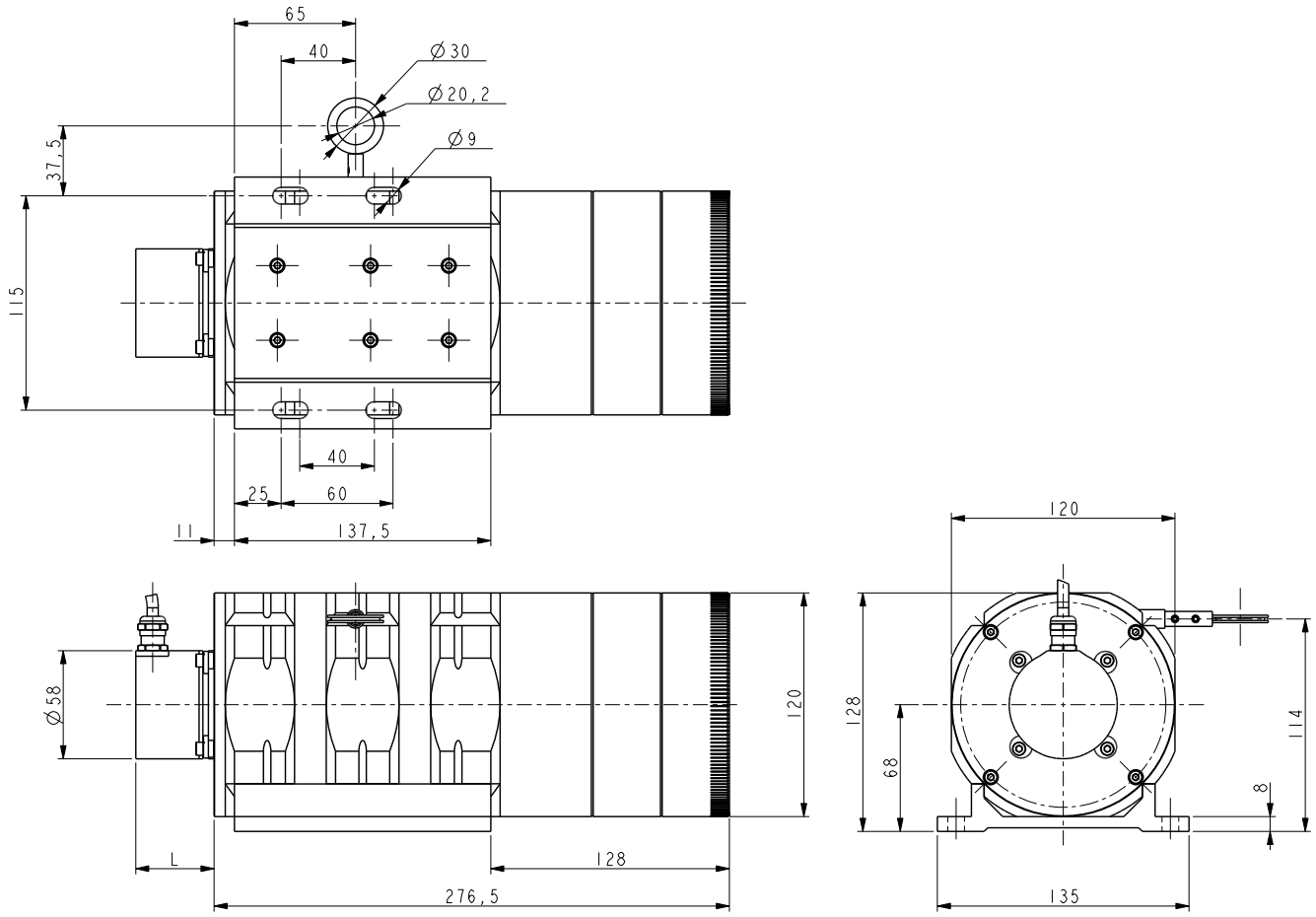
Order code

SAK	-	XXXXX ⓐ

ⓐ MEASURING LENGTH
10000 = 10000 mm
15000 = 15000 mm



SAK-10000



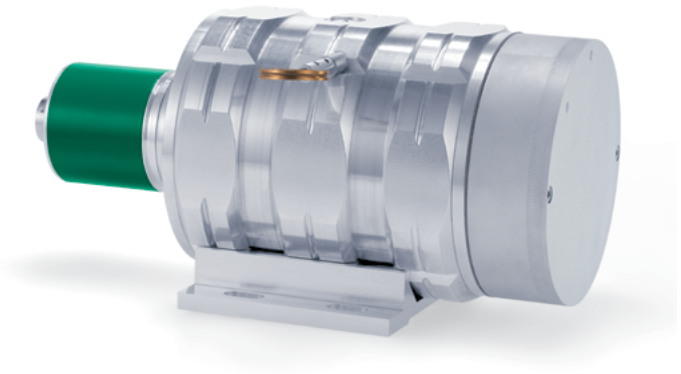
SAK-15000

DRAW WIRE

Draw-wire support for incremental & absolute encoders

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

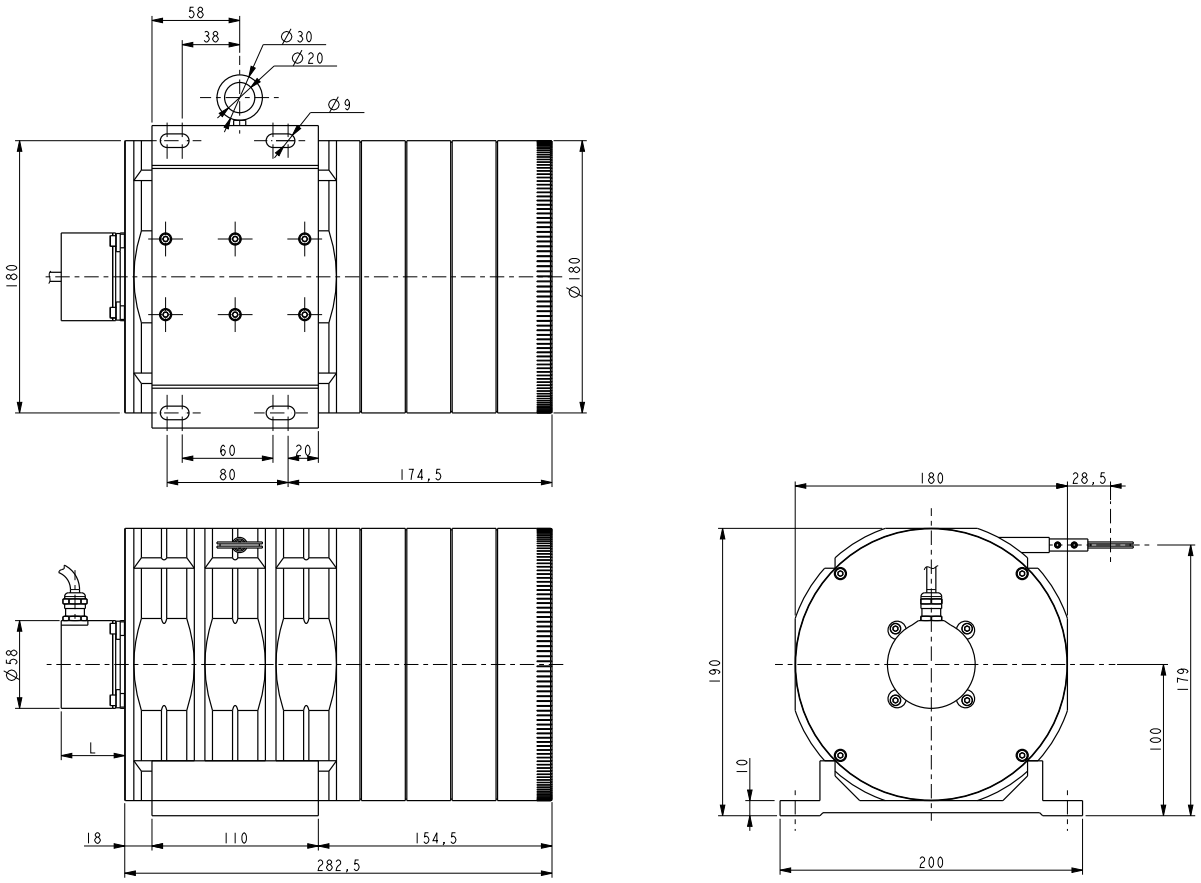
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Stroke per turn:	500 mm
Wire retraction force:	10 ÷ 30 N
Measuring length:	20.000, 30.000, 40.000, 50.000 mm
Measuring speed:	10 m/sec max.
Acceleration:	2 m/s² max. (20, 30 m versions) 1 m/s² max. (40, 50 m versions)
Linearity:	± 0,05% FS max.
Weight:	~ 12-13 kg (without encoder)

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

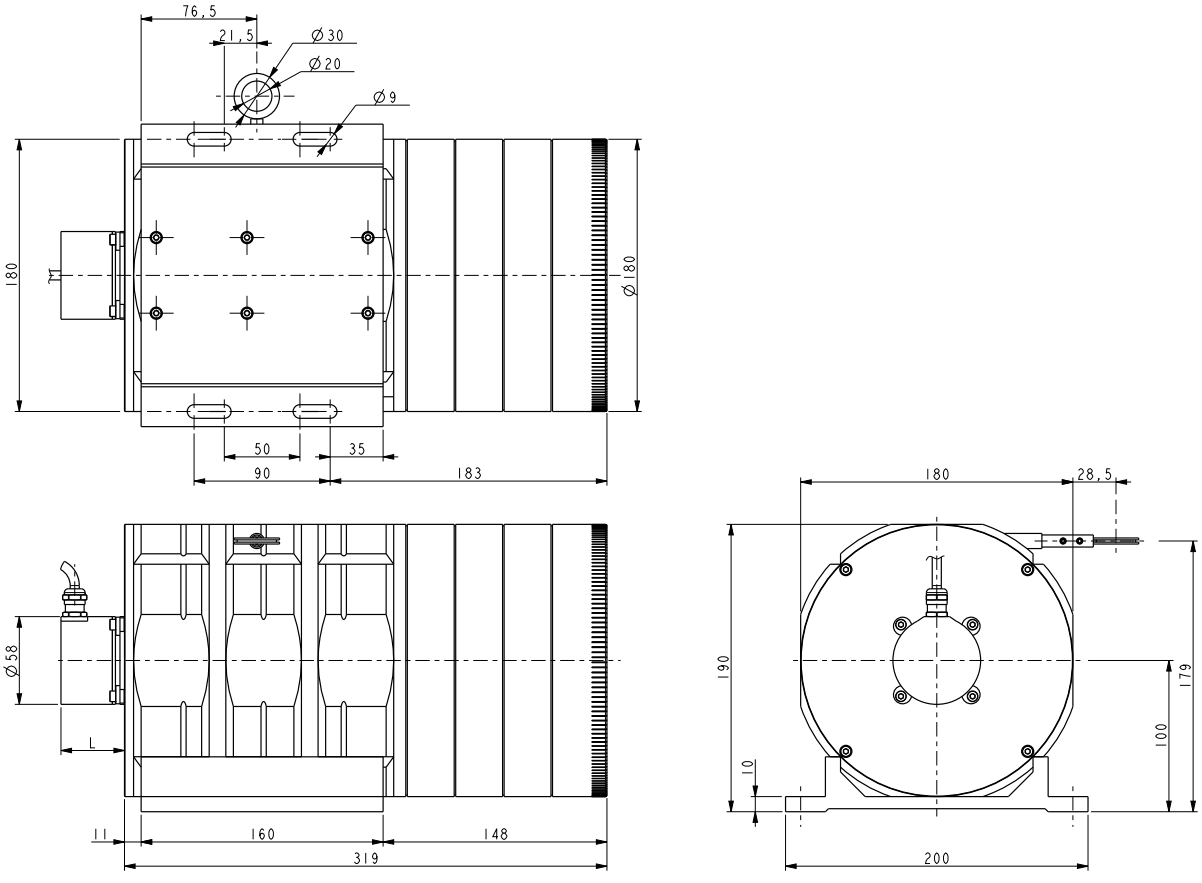
Order code

SBK	-	XXXXX ⓐ

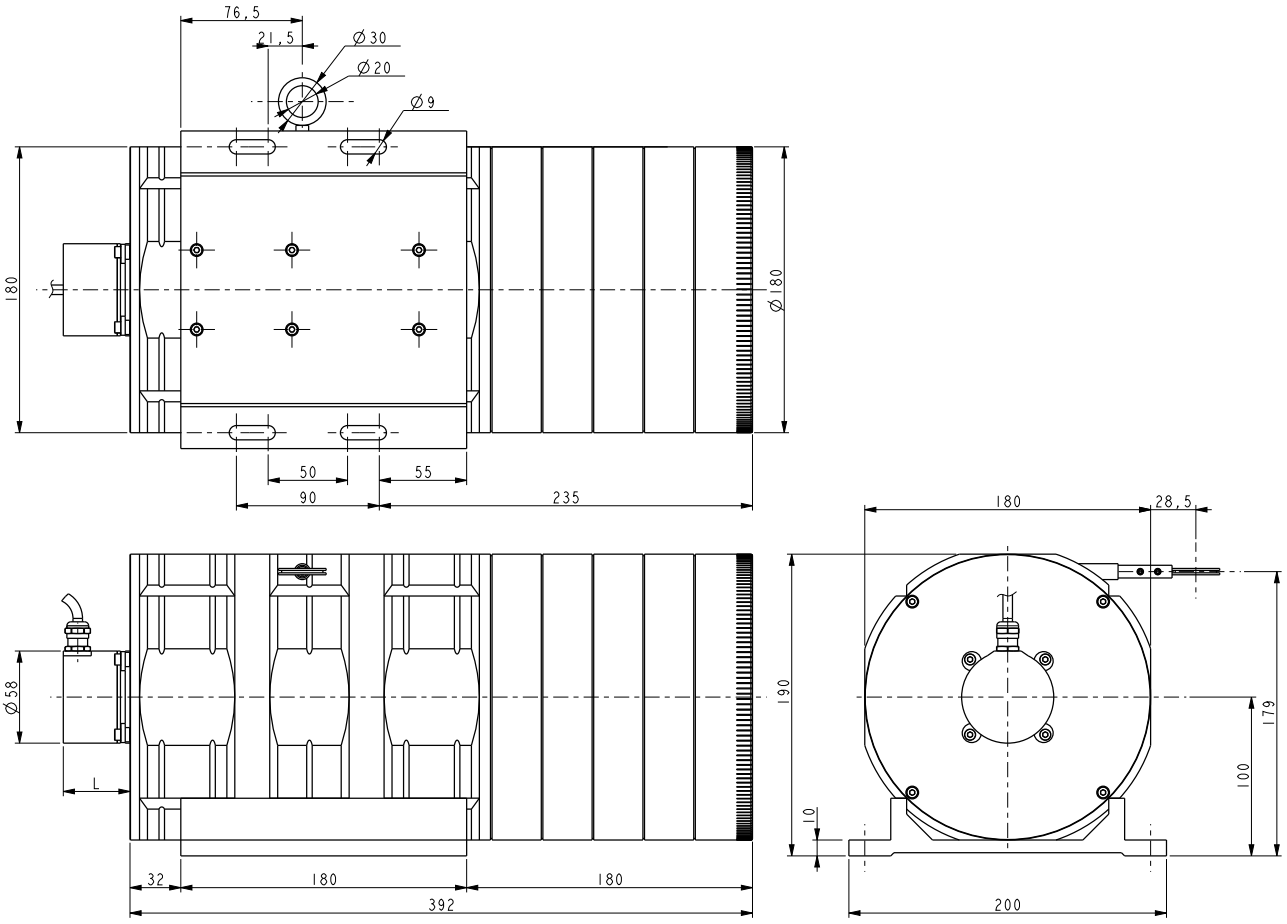
ⓐ MEASURING LENGTH
20000 = 20000 mm
30000 = 30000 mm
40000 = 40000 mm
50000 = 50000 mm



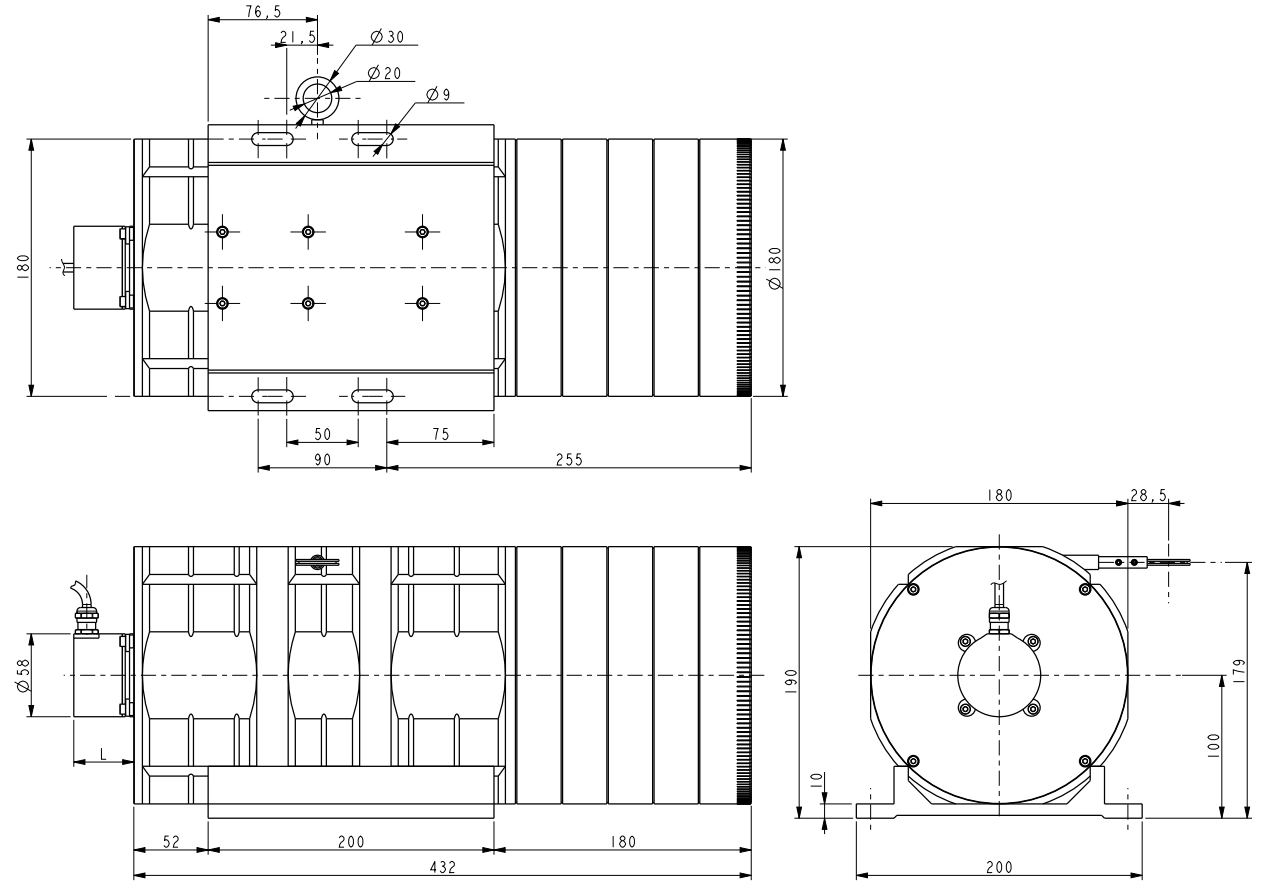
SBK-20000



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.

Smart encoders & actuators

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Edition 0916DW-E