Draw-wire mechanics with redundant sensors | **Draw-wire encoder D125** | **Measuring length up to 10 m integrated inclinometer**

Thanks to its robust design and its high IP67 protection level, the draw-wire encoder D125 reliably provides accurate length measurement. Its simple and optimal integration in the application is a particular highlight of this product. Many additional options, ranging from the integrated inclinometer up to the relay output, are available.

To increase plant availability, this draw-wire encoder allows combining a redundant system in a very compact housing.

RoHS Analog output CANopen

Wide temperature range

High protection level


Shock / vibration resistant


Redundancy

Characteristics

- Measuring length 6 ... 10 m.
- Integrated inclinometer.
- Redundant sensors.
- Different types of sensors (analog, CANopen).
- Linearity up to ±0.5 % of the measuring range.
- High protection level IP67 and wide temperature range from -40°C ... +85°C.

Advantages

- The suitable measuring length for every application.
- Cost, space and installation work saving.
- For even higher plant availability.
- Simple selection and fast installation.
- High accuracy at economic prices.
- Reliability and long service life for outdoor applications.

Order code with analog sensor

D8.D125.XXXX.XXX1.X000
(a) (b) (c) (d)

(a) *Measuring length*
0600 = 6 m
0700 = 7 m
0800 = 8 m
0900 = 9 m
1000 = 10 m

(b) *Sensor type*
A11 = 4 ... 20 mA
A22 = 0 ... 10 V
A44 = 0.5 ... 4.5 V
R11 = 4 ... 20 mA, redundant
R22 = 0 ... 10 V, redundant
R44 = 0.5 ... 4.5 V, redundant

(c) *Type of connection*
1 = M12 male connector, 5-pin

(d) *Power supply*
1 = 12 ... 30 V DC
2 = 5 V DC [1)]

Order code with CANopen and inclinometer

D8.D125.XXXX.RC11.1X00
(a) (b) (c) (d) (e)

(a) *Measuring length*
0600 = 6 m
0700 = 7 m
0800 = 8 m
0900 = 9 m
1000 = 10 m

(b) *Sensor type*
RC1 = CANopen redundant

(c) *Type of connection*
1 = M12 male connector, 5-pin

(d) *Power supply*
1 = 9 ... 30 V DC

(e) *Inclinometers*
0 = none
1 = 1 inclinometer
2 = 2 inclinometers

Stock types
D8.D125.1000.RC11.1000

1) Only in conjunction with type of sensor A44 and R44.

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Connection technology for analog sensor		Order no.
Cordset, pre-assembled	M12 female connector with coupling nut, 5-pin 2 m [6.56'] PVC cable	**05.00.6081.2211.002M**
Connector, self-assembly (straight)	M12 female connector with coupling nut, housing metal, 5-pin	**8.0000.5116.0000**
	M12 female connector with coupling nut, housing metal/plastic, 5-pin	**05.B-8151-0/9**
Connector, self-assembly (right-angle)	M12 female connector with coupling nut, housing plastic, 5-pin	**05.B-8251-0/9**

Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology..

Technical data

Mechanical characteristics (draw-wire mechanics)

Measuring range		6.0 ... 10.0 m
Measuring wire	material	AISI304 steel wire Nylon coated
	diameter	ø 0.9 mm
Wire fastening		eyelet
	internal diameter	ø 8 mm
	outer diameter	ø 15 mm
	height	2 mm
Wire pull-out speed max.		max. 1 m/s
Acceleration		max. 10 m/s²
Linearity (whole measuring range)		
	analog	±1.0 %
	CANopen	±0.5 %
Repetition accuracy (whole measuring range)	analog	±0.5 %
	CANopen	±0.2 %
Pull-back force		typ. 4.5 N [1]
Pull-out force		typ. 9 N
Type of connection		M12 connector, 5-pin
Housing		polycarbonate reinforced with glass fibers
Protection		IP67
Temperature range		-40°C ... +85°C [-40°F ... +185°F]
Weight		approx. 0.97 kg [34.2 oz]
Shock resistance acc. to EN 60068-2-27		300 m/s², 11 ms
Vibration resistance acc. to EN 60068-2-6		100 m/s², 10 ... 500 Hz

Analog sensor

Output signal	analog
Resolution	12 bit

CANopen

Output signal	CANopen (DS301)
Resolution	14 bit
Resolution inclinometer	0.1°
Accuracy inclinometer	±0.6°
Temperature drift inclinometer	±0,01 % / °C

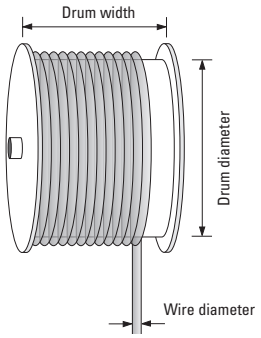
Electrical characteristics

Power supply	9 ... 30 V DC 5 V DC ±10 % [2]
Electromagnetic compatibility	EN 61326-1, EN 61326-3-1
CE compliant	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Operating principle

Construction
The core of a draw-wire device is a drum mounted on bearings, onto which a wire is wound.
Winding takes place via a spring-loaded device.

Note
Exceeding the maximum extension length of the draw-wire will lead to damage to the wire and the mechanics.



1) May be lower at low temperatures.
2) Only in conjunction with type of sensor A44 and R44.

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Terminal assignment

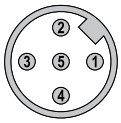
Sensor type	Interface	Type of connection	M12 connector, 5-pin					
A11, R11 (analog sensor)	current output	1	Signal:	+V	0 V	$I_{out\,1}$	$I_{out\,2}$ [1]	n.c.
			Pin:	1	2	3	4	5

Sensor type	Interface	Type of connection	M12 connector, 5-pin					
A22, R22, A44, R44 (analog sensor)	voltage output	1	Signal:	+V	0 V	$U_{out\,1}$	$U_{out\,2}$ [1]	n.c.
			Pin:	1	2	3	4	5

Sensor type	Interface	Type of connection	M12 connector, 5-pin					
RC1	CANopen	1	Signal:	+V	0 V	CAN-GND	CAN-H	CAN-L
			Pin:	2	3	1	4	5

+V : Power supply +V DC
0 V : Power supply GND (0V)
$I_{out\,1}$: Current output 1
$I_{out\,2}$: Current output 2
$U_{out\,1}$: Voltage output 1
$U_{out\,2}$: Voltage output 2
n.c. : not connected

Top view of mating side, male contact base



M12 connector, 5-pin

Technology in detail

Inclinometer with option RC1

Setting possibility 360°

angle: 0° ... 360°

Setting possibility ±180°

angle: ±180°

Redundant signals possible.

Setting possibilities:
- Switching between setting possibilities 180° and 360°.
- Switching between synchronous and asynchronous output.
- Change of direction of rotation (cw/ccw).
- Setting and resetting an offset.

1) Only in case of redundant ordering option sensor type R44 (otherwise n.c.).

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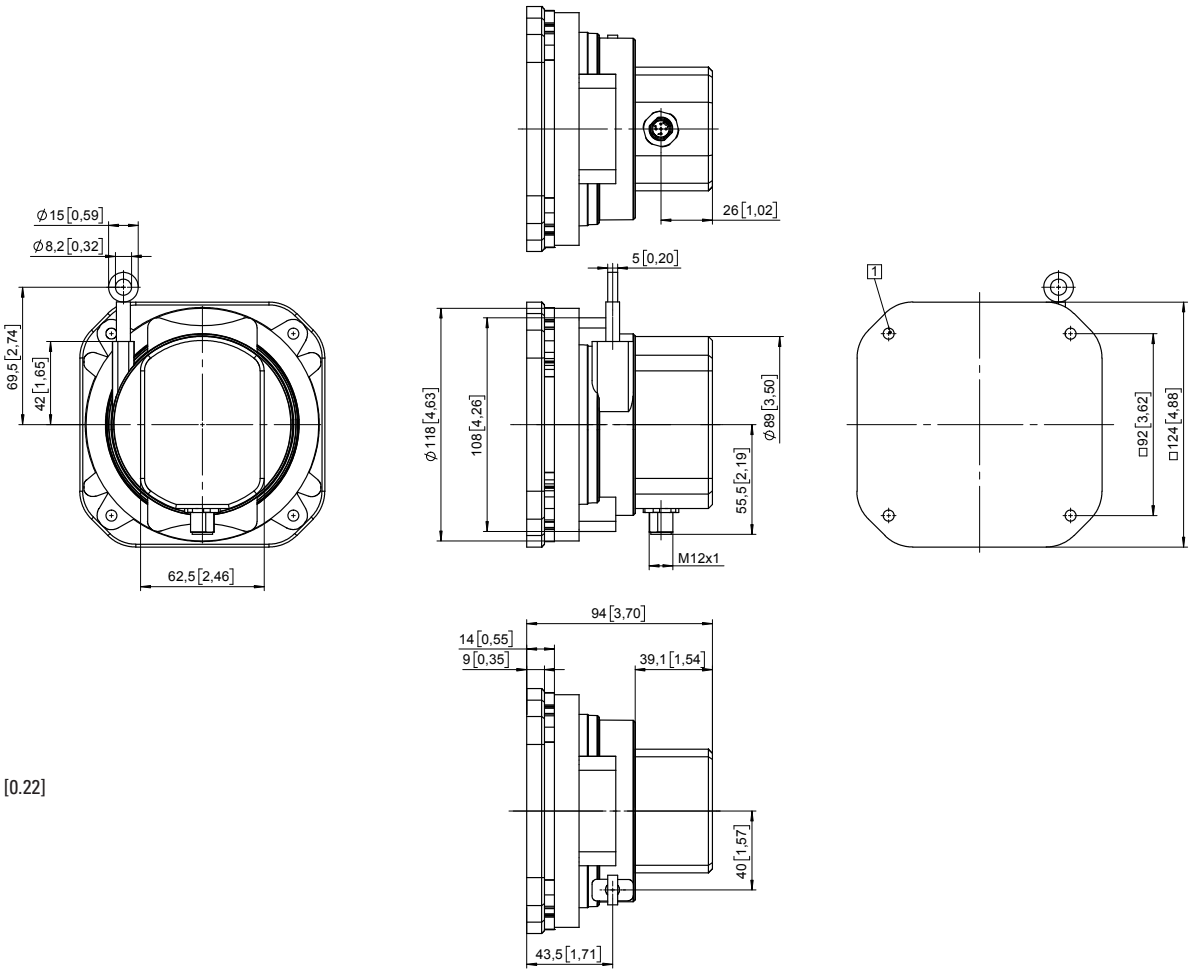
Dimensions

Dimensions in mm [inch]



1 4 x ø 5.5 [0.22]