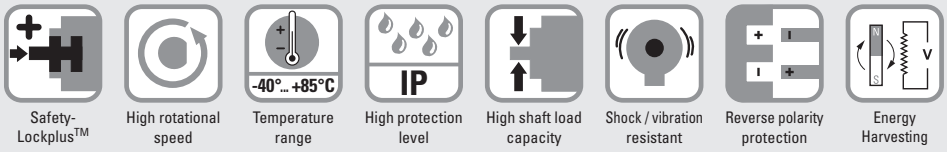
Standard, robust electronic multiturn, magnetic | **Sendix M5861 (shaft)** | **Analog**

The Sendix M58 with Energy Harvesting Technology is an electronic multiturn encoder without gear and without battery – in the standard format with 58 mm flange.

High robustness and high resolution make this encoder the ideal device for use in demanding applications.



Safety-Lockplus™ | High rotational speed | Temperature range | High protection level | High shaft load capacity | Shock / vibration resistant | Reverse polarity protection | Energy Harvesting

Highest robustness

- Sturdy bearing construction in Safety-Lockplus™ design for particularly high resistance.
- Extra large bearings.
- Mechanically protected shaft seal.
- Wide temperature range -40°C ... +85°C.
- Without gear and without battery, thanks to the Energy Harvesting technology.

Application oriented

- Current output 4 ... 20 mA.
- Voltage output 0 ... 10 V or 0 ... 5 V.
- Measuring range scalable.
- Limit switch function.

Order code Shaft version

8.M5861 . X X X X . X X 1 2
Type — a b c d — e f

a *Version*
3 = clamping flange, IP65, ø 58 mm [2.28"]
4 = synchro flange, IP65, ø 58 mm [2.28"]

b *Shaft (ø x L), with flat*
1 = ø 6 x 12.5 mm [0.24 x 0.49"]
5 = ø 10 x 20 mm [0.39 x 0.79"]

c *Output circuit* [1)]
3 = current output
4 = voltage output

d Type of connection
2 = radial cable, 1 m [3.28'] PVC
B = radial cable, special length PVC *)
4 = radial M12 connector, 5 pin

*) Available special lengths (connection types B):
2, 3, 5, 8, 10, 15 m [5.56, 9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.M5861.3132.3112.0030 (for cable length 3 m)

e Interface / resolution / power supply
3 = 4 ... 20 mA / 12 bit / 10 ... 30 V DC
4 = 0 ... 10 V / 12 bit / 15 ... 30 V DC
5 = 0 ... 5 V / 11 bit / 10 ... 30 V DC

f *Measuring range*
1 = 16 revolutions / cw
2 = 16 revolutions / ccw
3 = scalable up to 65,536 revolutions, with limit switch function
4 = scalable up to 65,536 revolutions, without limit switch function

Optional on request
- Ex 2/22 (only for connection type 4)

Connection technology		Order no.
Coupling	Bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	**8.0000.1102.1010**

Connection technology		Order no.
Connector, self-assembly (straight)	M12 female connector with coupling nut	**8.0000.5116.0000**
Cordset, pre-assembled	M12 female connector with coupling nut, 2 m [6.56'] PVC cable	**05.00.6081.2211.002M**

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
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.

1) Output circuit "3" only in conjunction with interface "3",
output circuit "4" only in conjunction with interface "4" or "5".

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Technical data

Electrical characteristics current interface 4 ... 20 mA

Power supply		10 ... 30 V DC
Current consumption (no load)		max. 30 mA
Reverse polarity protection of the power supply		yes
Short-circuit proof outputs		yes [1]
Measuring range	factory setting optionally scalable	2^4 revolutions up to 2^{16} revolutions
DA converter resolution		12 bit
Singleturn accuracy, at 25°C [77°F]		±1°
Temperature coefficient		< 100 ppm/K
Repeat accuracy, at 25°C [77°F]		±0.2°
Output load	at 10 V DC at 24 V DC at 30 V DC	max. 200 Ohm max. 900 Ohm max. 1200 Ohm
Setting time		< 1 ms, R_{Burden} = 900 Ohm, 25°C [77°F]
LEDs (green/red)		- system status - current loop interruption – input load too high - reference point display (only with factory settings) at cw: betw. 0° and 1° at ccw: betw. 0° and -1° - status in teach mode
Options		- output signal scalable via the teach inputs - output signal scalable via the teach inputs + limit switch function
Teach inputs		level = +V for 1 s minimum
PowerON Time		< 1 s
Update rate		1 ms
UL approval		File 224618
CE compliant acc. to		EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Electrical characteristics voltage interface 0 ... 10 V / 0 ... 5 V

Power supply	output 0 ... 5 V output 0 ... 10 V	10 ... 30 V DC 15 ... 30 V DC
Current consumption (no load)		max. 30 mA
Reverse polarity protection of the power supply		yes
Short-circuit proof outputs		yes [1]
Measuring range	factory setting optionally scalable	2^4 revolutions up to 2^{16} revolutions
DA converter resolution	0 ... 10 V 0 ... 5 V	12 bit 11 bit
Singleturn accuracy, at 25°C [77°F]		±1°
Temperature coefficient		< 100 ppm/K
Repeat accuracy, at 25°C [77°F]		±0.2°
Current output		max. 10 mA
Setting time		< 1 ms, R_{Load} = 1000 Ohm, 25°C [77°F]
LEDs (green/red)		- system status - reference point display (only with factory settings) at cw: betw. 0° and 1° at ccw: betw. 0° and -1° - status in teach mode
Options		- output signal scalable via the teach inputs - output signal scalable via the teach inputs + limit switch function
Teach inputs		level = +V for 1 s minimum
PowerON Time		< 1 s
Update rate		1 ms
UL approval		File 224618
CE compliant acc. to		EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Mechanical characteristics

Maximum speed		4000 min^{-1} 2000 min^{-1} (continuous)
Starting torque at 20°C [68°F]		< 0.01 Nm
Shaft load capacity	radial axial	80 N 40 N
Weight		approx. 0.2 kg [7.06 oz]
Protection acc. to EN 60529/DIN 40050-9		IP65
Arbeitstemperaturbereich		-40°C ... +85°C [-40°F ... +185°F]
Materials	shaft flange housing cable	V2A aluminium zinc die-cast PVC
Shock resistance acc. to EN 60068-2-27		5000 m/s^2, 4 ms
Vibration resistance acc. to EN 60068-2-6		300 m/s^2, 10 ... 2000 Hz

1) When the power supply is correctly applied.
But not output to +V. Power supply and sensor output signal are not galvanically isolated.

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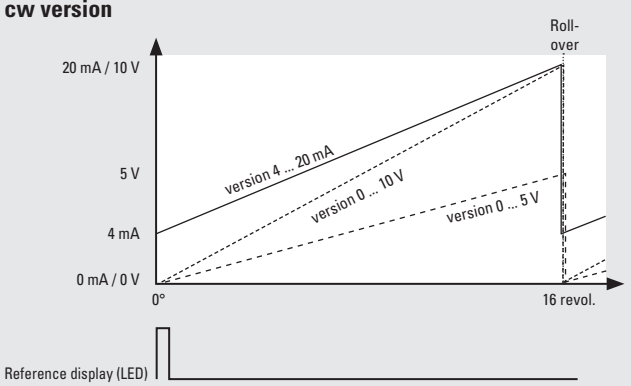
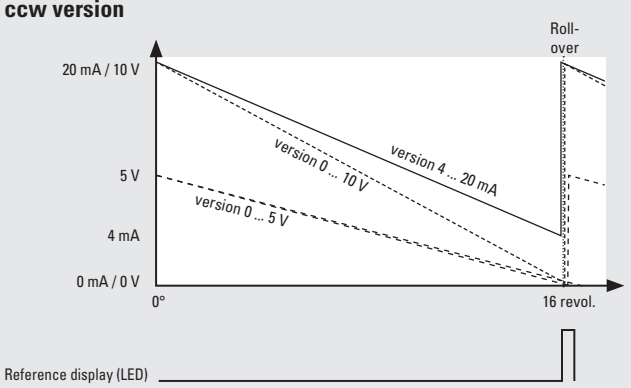
Example (output signal evolution) – factory setting

cw version

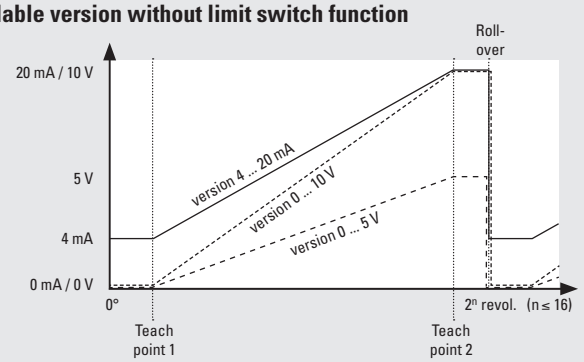


ccw version



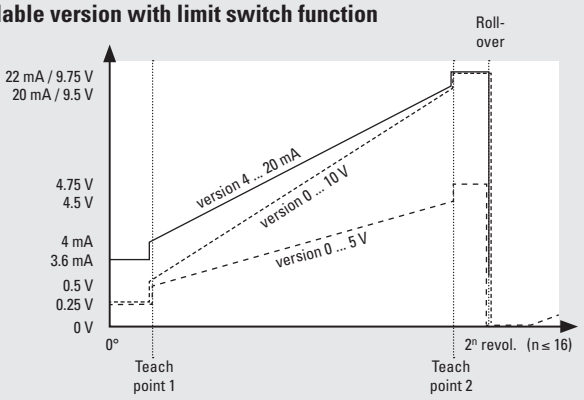
Example (output signal evolution) – option: scaleable

Scalable version without limit switch function



no reference point display!

Scalable version with limit switch function



no reference point display!

Rollover
if the signal scaled by the user is smaller than these ranges.
at 2^1, 2^2, 2^3 ... 2^{16}

Factory-set measuring range
2^4 revolutions

Limit switch function

	0 ... 10 V	**0 ... 5 V**	**4 ... 20 mA**
version			
limit switch low	0.25 V	0.25 V	3.6 mA
limit switch high	9.75 V	4.75 V	22.0 mA

Terminal assignment

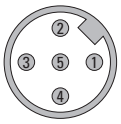
Interface	Type of connection	Cable (isolate unused wires individually before initial start-up)					
3 (current)	2, B	Signal:	0 V	+V	+I	SET 1 [1]	SET 2 [1]
		Cable colour:	WH	BN	GN	GY	PK

Interface	Type of connection	M12 connector, 5 pin					
3 (current)	4	Signal:	0 V	+V	+I	SET 1 [1]	SET 2 [1]
		Pin:	3	2	1	5	4

Interface	Type of connection	Cable (isolate unused wires individually before initial start-up)					
4, 5 (current)	2, B	Signal:	0 V	+V	+U	SET 1 [1]	SET 2 [1]
		Cable colour:	WH	BN	GN	GY	PK

Interface	Type of connection	M12 connector, 5 pin					
4, 5 (current)	4	Signal:	0 V	+V	+U	SET 1 [1]	SET 2 [1]
		Pin:	3	2	1	5	4

Top view of mating side, male contact base



M12 connector, 5-pin

+V : encoder power supply +V DC
0 V : encoder power supply ground GND (0 V)
+U : voltage
+I : current
SET 1 : set input for teachpoint 1
SET 2 : set input for teachpoint 2

1) For scalable version.

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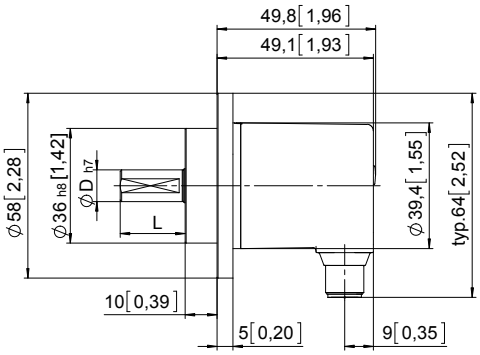
Dimensions

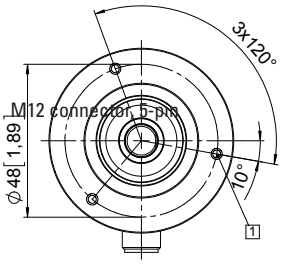
Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]
Flange type 3

1 3 x M3, 6 [0.24] deep

D	L	Fit
6 [0.24]	12,5 [0.49]	h7
10 [0.39]	20 [0.79]	h7





Synchro flange, ø 58 [2.28]
Flange type 4

1 3 x M4, 10 [0.39] deep

D	L	Fit
6 [0.24]	12,5 [0.49]	h7
10 [0.39]	20 [0.79]	h7