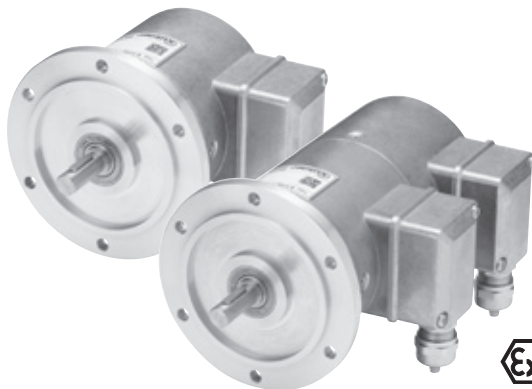


Incremental Encoders

**Heavy Duty
Shaft, optical**

Sendix Heavy Duty H100 (Shaft)

Push-Pull / RS422 / Speed switch



The Heavy Duty encoder H100 is an extremely rugged incremental encoder available in 3 versions: encoder with or without speed switch and double encoder.

Thanks to the special HD-Safety-Lock™ construction it is ideally suited for applications in heavy industry, such as steel works and cranes. Resistant materials, wide temperature ranges and a high protection level ensure it remains unaffected by the harshest environmental conditions. Its innovative connection technology enables simple quick installation.



HD-Safety-Lock™



High rotational speed



Temperature range
-40°...+100°C



High protection level
IP66



High shaft load capacity



Magnetic field proof



Plug-in cage-clamp connectors



Spring terminal connectors



Reverse polarity protection



Optical sensor



Seawater-resistant

Suitable for your Heavy Duty application

- HD-Safety-Lock™ bearing construction for an extremely high bearing load capacity of up to 300 N axial and 400 N radial
- With a temperature range from -40°C up to +100°C [-40°F ... +212°F], IP66 protection and seawater-resistant material the encoder is resistant to harsh environmental conditions
- Feather key shaft slot ensures positive fitting to the application
- Safe overspeed protection by means of mechanical speed switch

Simple quick installation

- Innovative plug-in spring terminal connectors in the terminal box greatly simplify the cable connection and offer a very high level of safety
- Various connection possibilities thanks to terminal box being rotatable through 180°
- Large number of resolution and switching speed options available as standard

Order code without speed switch

8.H100 . 1 1 1 X . XXXX
Type a b c d e

a Flange
1 = Euro RE0444

c Version
1 = incremental encoder

e Pulse rate
360, 512, 1000, 1024, 2048, 2500, 3600
(e.g. 360 pulses => 0360)
Other pulse rates on request
optional on request - Ex 2/22

b Shaft (ø x L),
with feather key shaft slot
1 = ø 11 x 30 mm [0.43 x 1.18"]

d Output circuit / Power supply
1 = RS422 (with inverted signal) / 5 ... 30 V DC
2 = Push-pull (with inverted signal) / 10 ... 30 V DC

Order code with speed switch

8.H100 . 1 1 2 X . XXXX . XXXX . 1
Type a b c d e f g

a Flange
1 = Euro RE0444

d Output circuit / Power supply
1 = RS422 (with inverted signal) / 5 ... 30 V DC
2 = Push-pull (with inverted signal) / 10 ... 30 V DC

f Switching speed
750, 1000, 2000, 3000, 4000
Other switching speeds on request
optional on request - Ex 2/22

b Shaft (ø x L), with feather key shaft slot
1 = ø 11 x 30 mm [0.43 x 1.18"]

e Pulse rate
360, 512, 1000, 1024, 2048, 2500, 3600
(e.g. 360 pulses => 0360)
Other pulse rates on request

g Switching accuracy
1 = Standard (± 4% at 100 rad/s²)
Other switching accuracies on request

c Version
2 = incremental encoder
with mech. speed switch

Order code double encoder

8.H100 . 1 1 3 X . XXXX . XXXX
Type a b c d e f

a Flange
1 = Euro RE0444

c Version
3 = 2 x incremental encoder

e Pulse rate encoder 1
360, 512, 1000, 1024, 2048, 2500, 3600
optional on request - Ex 2/22

b Shaft (ø x L),
with feather key shaft slot
1 = ø 11 x 30 mm [0.43 x 1.18"]

d Output circuit / Power supply
1 = RS422 (with inverted signal) / 5 ... 30 V DC
2 = Push-pull (with inverted signal) / 10 ... 30 V DC

f Pulse rate encoder 2
360, 512, 1000, 1024, 2048, 2500, 3600
Other pulse rates on request

Incremental Encoders

Heavy Duty Shaft, optical	Sendix Heavy Duty H100 (Shaft)	Push-Pull / RS422 / Speed switch
Mounting accessory		Order No.
Coupling	Double loop coupling for shaft 12 mm [0.47"] with feather key shaft slot 4 mm [0.16"]	8.0000.1L01.1112
Accessories – connecting cable		Order No.
Encoder cable	PUR-trailing cable, shielded, halogen free, orange – 4 x 2 x 0.25 mm ² [AWG 23] + 2 x 1 mm ² [AWG 17], twisted pair	8.0000.6400.XXXX¹⁾
Speed switch cable	TPE-trailing cable, shielded, halogen free, black – 5 x 0.75 mm ² [AWG 18]	8.0000.6600.XXXX¹⁾

Technical data

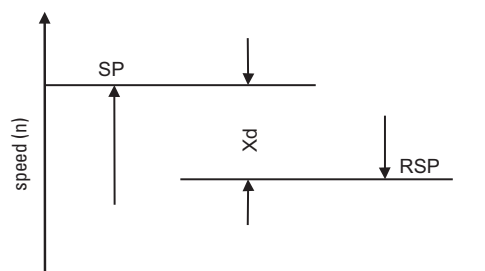
Mechanical characteristics	
Speed	max. 6000 min ⁻¹
Starting torque with seal – at 20°C [68°F]	~ 2 Ncm
Load capacity of shaft	radial 400 N axial 300 N
Weight	H100 ~ 1.8 kg [63.49 oz] H100 + speed switch ~ 2.7 kg [95.24 oz]
Protection acc. to EN 60529	IP66
EX approval for hazardous areas	optional zone 2 and 22
Working temperature range (surface of housing)	-40°C ... +100°C [-40°F ... + 212°F]
Materials	shaft stainless steel housing die-cast aluminium (EN AC-44300), seawater-resistant coating flange seawater resistant aluminium, Type Al Si Mg Mn (EN AW-6082)
Shock resistance acc. EN 60068-2-27	< 300 g ~ 3000 m/s ² (1 ms)
Vibration resistance acc. EN 60068-2-27	< 10 g ~ 100 m/s ² for switching speed 750 or 1000 < 5 g ~ 50 m/s ²

Electrical characteristics		
Output circuit	RS422 (TTL compatible)	Push-Pull (HTL) up to 150 m [492.13'] cable length
Power supply	5 ... 30 V DC	10 ... 30 V DC
Power consumption (no load)		
with inverted signal	typ. 40 mA / max. 90 mA	typ. 50 mA / max. 100 mA
Permissible load / channel	max. ±20 mA	max. ±30 mA
Pulse frequency	max. 300 kHz	max. 300 kHz
Signal level	HIGH min. 2.5 V LOW max. 0.5 V	min. +V - 2.5 V max. 0.5 V
Rising edge time t_r	max. 200 ns	max. 1 µs
Falling edge time t_f	max. 200 ns	max. 1 µs
Short circuit proof outputs²⁾	yes ³⁾	yes
Reverse polarity protection of the power supply	yes	yes
CE-compliant acc. to	EMC guideline 2004/108/EC	
RoHS compliant acc. to	guideline 2002/95/EC	

Speed switch	
Switching speed (ns)	750 ... 4000 min ⁻¹
Max. rotational speed (mechanical)	1.25 x ns
Switching accuracy with acceleration $\alpha = 100 \text{ rad/s}^2$ (corresponds $\Delta n = 955 \text{ min}^{-1}/\text{s}$)	+/- 4% of ns
Switching difference CW/CCW rotation	~ 3 %
Switching hysteresis (Xd)	~ 40% up to 80% of ns
Switching capacity	3 A / 230 V AC 1 A / 125 V DC

(more details see manual)

Definition Switching hysteresis (Xd)



SP = Switching point (for switching speed ns)
RSP = Reset point
Xd = Switching difference (hysteresis)

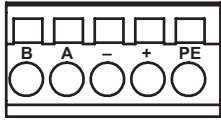
1) XXXX = cable length in meters
2) If supply voltage +V correctly applied
3) Only one channel allowed to be shorted-out:
At +V short circuit to channel or 0 V is permitted.

Incremental Encoders

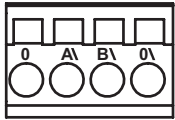
Heavy Duty Shaft, optical	Sendix Heavy Duty H100 (Shaft)	Push-Pull / RS422 / Speed switch
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Terminal assignment terminal connections

Incremental encoders

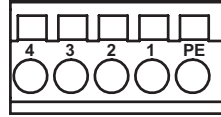


B incremental track B
 A incremental track A
 - 0 V
 + +V
 PE shield

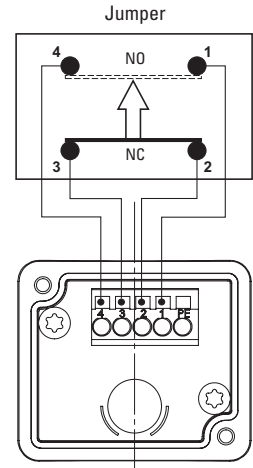


0 incremental track 0
 A incremental track A
 B incremental track B
 0 incremental track 0

Speed switch



4, 1 normally open (NO)
 3, 2 normally closed (NC)
 PE shield

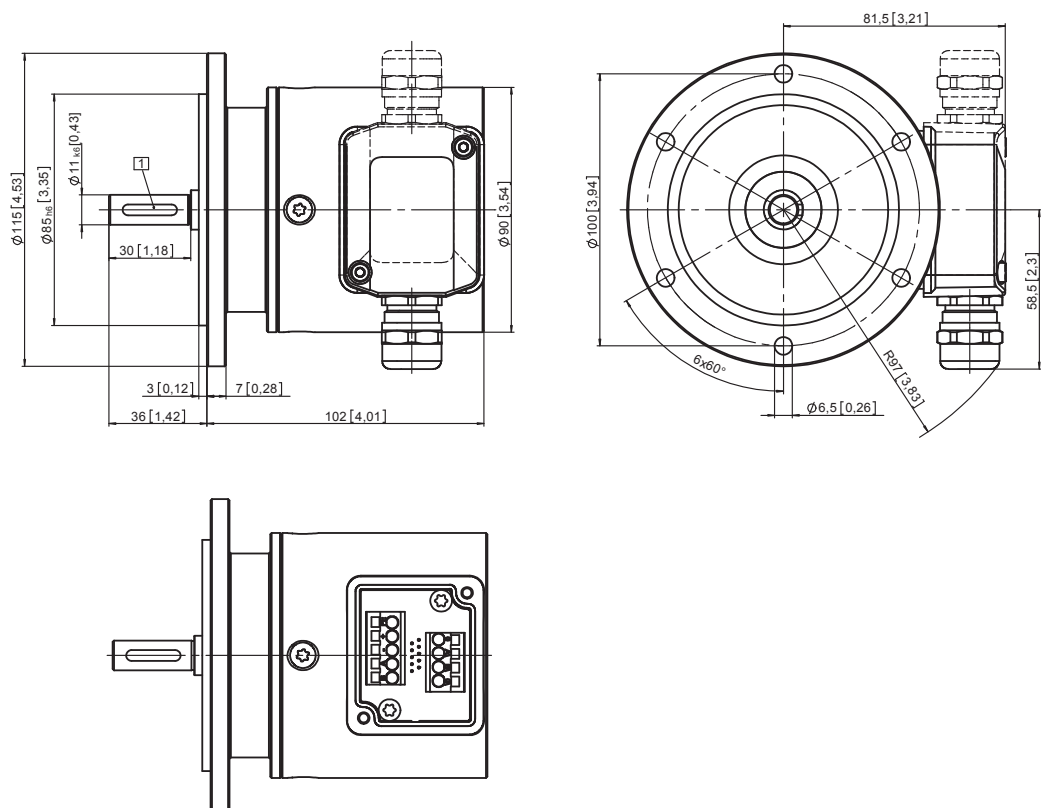


Dimensions

Dimensions in mm [inch]

Incremental encoder Version 1

1 Feather key acc. to ISO 773
 4 x 4 x 20 [0.16 x 0.16 x 0.79]



Incremental Encoders

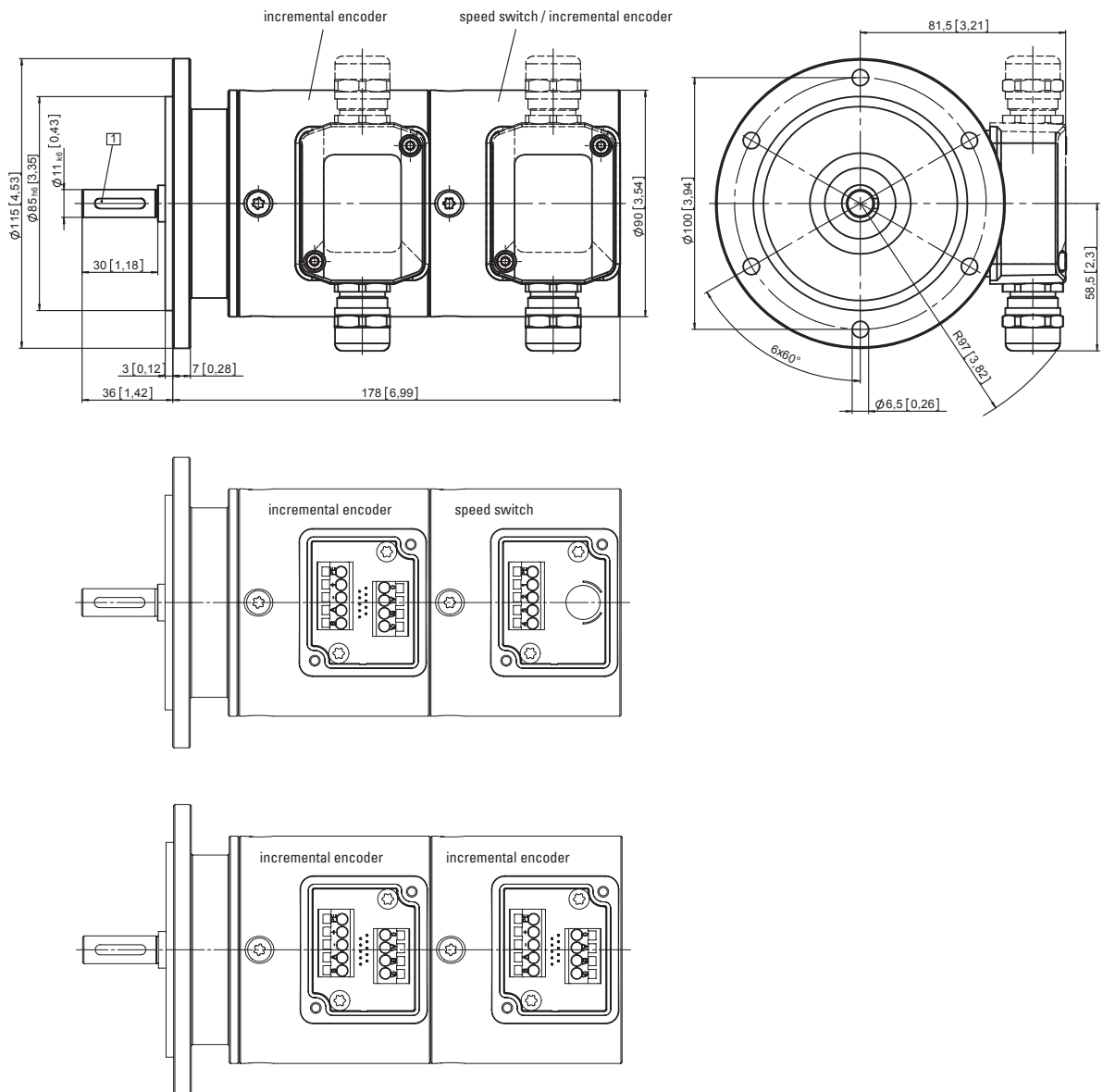
Heavy Duty Shaft, optical	Sendix Heavy Duty H100 (Shaft)	Push-Pull / RS422 / Speed switch
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Dimensions

Dimensions in mm [inch]

Incremental encoder with mechanical speed switch or 2 x incremental encoder (double encoder) Version 2 or 3

- 1 Feather key acc. to ISO 773
4 x 4 x 20 [0.16 x 0.16 x 0.79]



Incremental Encoders