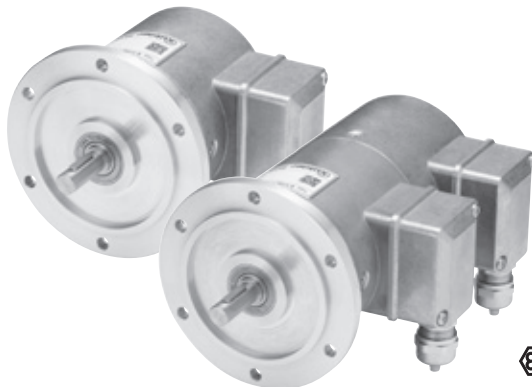


Incremental Encoders

Heavy Duty, optical

Sendix 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



High IP value



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, 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-in¹⁾ 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

a Flange
1 = Euro RE0444

b Shaft (ø x L), with feather key shaft slot
1 = ø 11 x 30 mm

c Version
1 = incremental encoder

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

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

Order code with speed switch

8.H100 . 1 1 2 X . XXXX . XXXX . 1

a Flange
1 = Euro RE0444

b Shaft (ø x L), with feather key shaft slot
1 = ø 11 x 30 mm

c Version
2 = increm. encoder with mech. speed switch

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

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

f Switching speed
750, 1000, 2000, 3000, 4000
Other switching speeds on request

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

Order code double encoder

8.H100 . 1 1 3 X . XXXX . XXXX

a Flange
1 = Euro RE0444

b Shaft (ø x L), with feather key shaft slot
1 = ø 11 x 30 mm

c Version
3 = 2 x incremental encoder

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

e Pulse rate encoder 1
360, 512, 1000, 1024, 2048, 2500, 3600

f Pulse rate encoder 2
360, 512, 1000, 1024, 2048, 2500, 3600

Other pulse rates on request

1) Plug-in version from 2nd quarter 2011 - until then non plug-in spring terminal connector

Incremental Encoders

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

| Accessories | | |
|---------------------------|--|---------------------------------------|
| Encoder cable | PUR-trailing cable, shielded, halogen free, orange (4 x 2 x 0,25 mm ² + 2 x 1 mm ² , twisted pair) | 8.0000.6400.XXXX ¹⁾ |
| Speed switch cable | TPE-trailing cable, shielded, halogen free, black (5 x 0,75 mm ²) | 8.0000.6600.XXXX ¹⁾ |

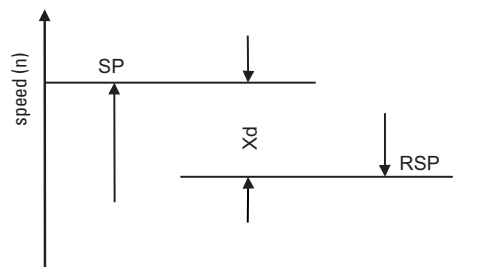
| Mechanical characteristics | | |
|---|---------------------------------|--|
| Speed | | max. 6000 min ⁻¹ |
| Starting torque with seal | | ~ 2 Ncm |
| Load capacity of shaft | radial | 400 N |
| | axial | 300 N |
| Weight | H100 | ~ 1,8 kg |
| | H100 + speed switch | ~ 2,7 kg |
| Protection acc. to EN 60 529 | | IP66 |
| EX approval for hazardous areas | | II 3G 3D Eex nA T4 |
| Working temperature range (surface of housing) | | -40°C ... +100°C |
| 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 |

| Speed switch | |
|---|----------------------------------|
| Switching speed (ns) | 750 ... 4000 min ⁻¹ |
| max. rotational speed (mechanical) | 1,25 x ns |
| Switching accuracy | +/- 4% of ns |
| with acceleration $\alpha = 100 \text{ rad/s}^2$ (corresponds $\Delta n = 955 \text{ min}^{-1}/\text{s}$) | |
| Switching difference CW/CCW rotation | ~ 3 % |
| Switching hysteresis (Xd) | ~ 40% up to 65% of ns |
| Switching capacity | 3 A / 230 V AC 1 A / 125 V DC |

(more details see manual)

| Electrical characteristics | | |
|--|---|---|
| Output circuit | RS 422 (TTL compatible) | Push-Pull (HTL) up to 150m 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. $\pm 20 \text{ mA}$ | max. $\pm 30 \text{ mA}$ |
| Pulse frequency | max. 300 kHz | max. 300 kHz |
| Signal level | high | min. 2,5 V |
| | low | 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 outputs ²⁾ | yes ³⁾ | yes |
| Reverse connection of the supply voltage | yes | yes |
| CE-compliant acc. to | EN 61000-6-1, EN 61000-6-4 and EN 61000-6-3 | |

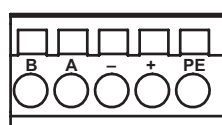
Definition Switching hysteresis (Xd)



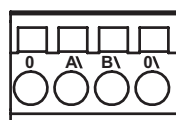
SP = Switching point (for switching speed ns)
RSP = Reset point
Xd = Switching difference (Hysteresis)

Terminal assignment terminal connections

Incremental encoders

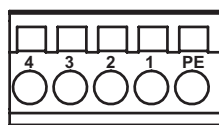


B incremental track B
A incremental track A
- 0 V
+ +U_B
PE shield

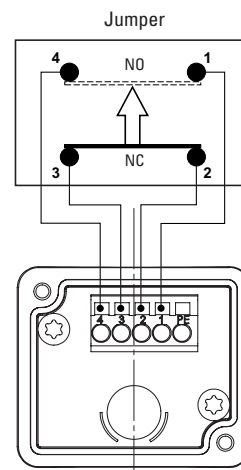


0 incremental track 0
A\ incremental track A inv.
B\ incremental track B inv.
0\ incremental track 0 inv.

Speed switch



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



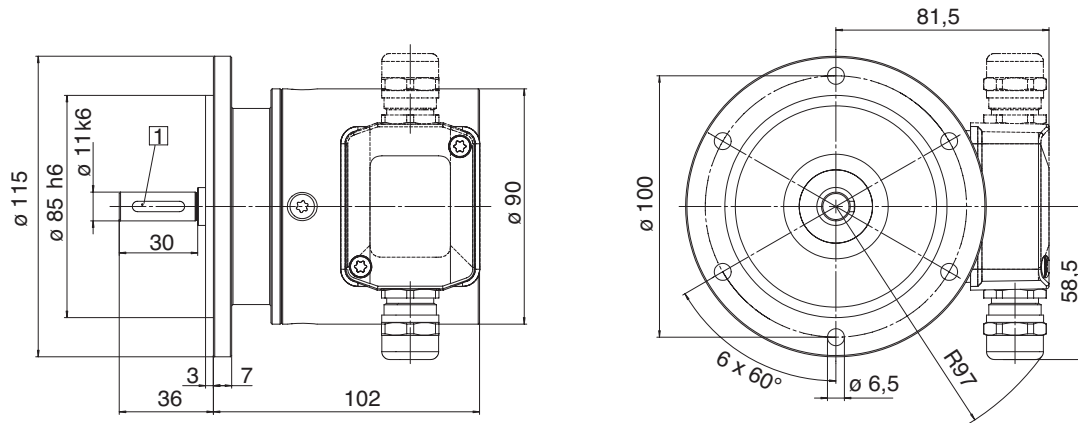
1) XXXX = cable length in meters
2) If supply voltage U_B correctly applied
3) Only one channel allowed to be shorted-out:
at U_B = 5 V short circuit to channel, 0 V, or +U_B is permitted.
at U_B = 5 ... 30 V short circuit to channel or 0 V is permitted.

Incremental Encoders

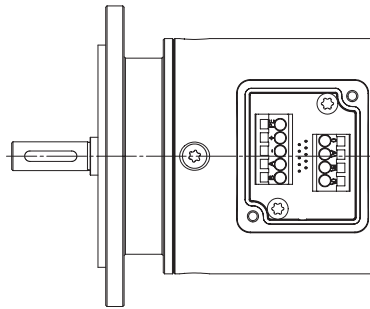
| | | |
|----------------------------|----------------------------|---|
| Heavy Duty, optical | Sendix H100 (Shaft) | Push-Pull / RS422 / Speed switch |
|----------------------------|----------------------------|---|

Dimensions

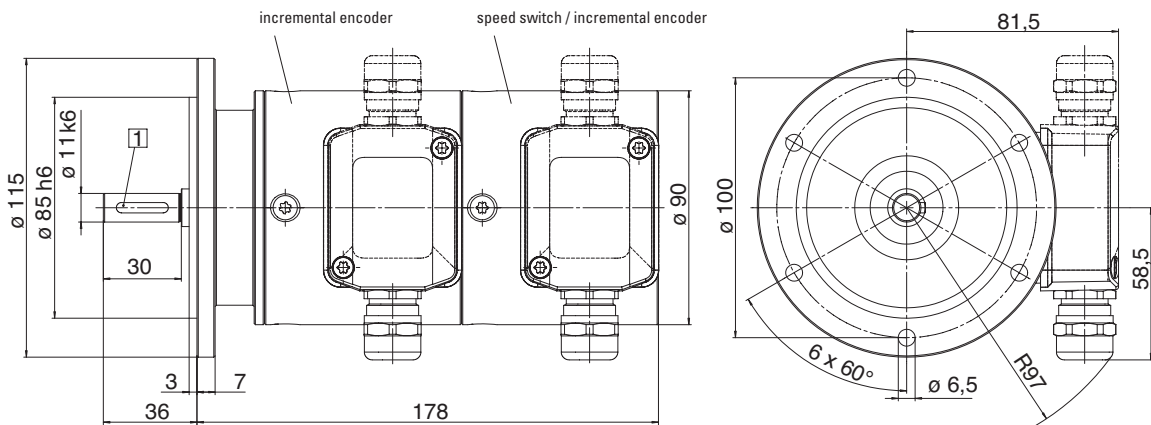
Incremental encoder



1 Feather key acc. to ISO 773



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



1 Feather key acc. to ISO 773

