

RH100 encoder system



The RH100 readhead works with 40 µm reflective tape scale, has patented filtering optics, set-up LED, and offers high speed performance.

The RH100 offers generous set-up tolerances and maintains good contamination immunity.

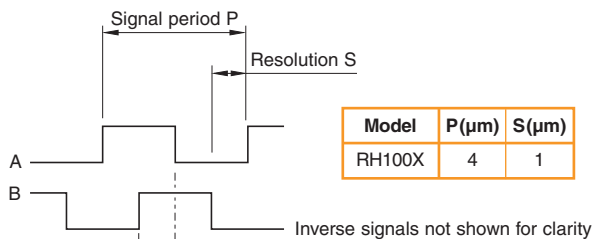
- Non-contact open optical system
- Large installation tolerances
- Maximum speed 6 m/s
- Integral reference and dual limit sensors
- Integral set-up LED
- Uses Renishaw S40 self-adhesive scale

Output specifications

Digital output signals

Form - square wave differential line driver to EIA RS422A (except limit switch P, Q, Alarm E and external set-up signal X)

Incremental 2 channels A and B in quadrature (90° phase shifted)

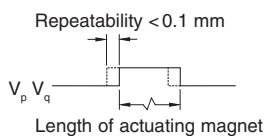


Reference

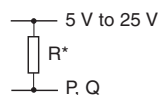


Synchronised pulse Z, duration as resolution S
Repeatability of position (uni-directional) maintained within ± 20 °C from temperature at time of phasing, and for speeds <0.5 m/s
Actuation device A-9531-0250
Inverse signals not shown for clarity

Limit open collector output



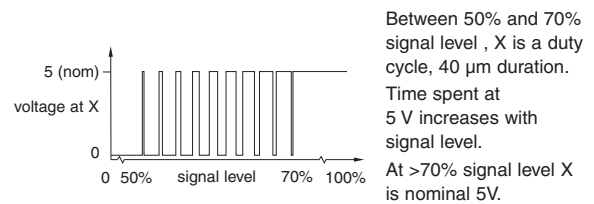
Termination



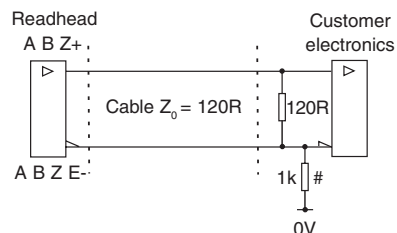
Asynchronous pulse P,Q
Actuation device A-9531-0251, A-9531-2052, A-9531-2054
*Select R so that the maximum current does not exceed 20 mA
Alternatively, a suitable relay or opto-isolator may be used

Alarm - single ended line driven asynchronous pulse E-
Alarm asserted for signal amplitude <15 %
(20 ms minimum duration)

External set-up



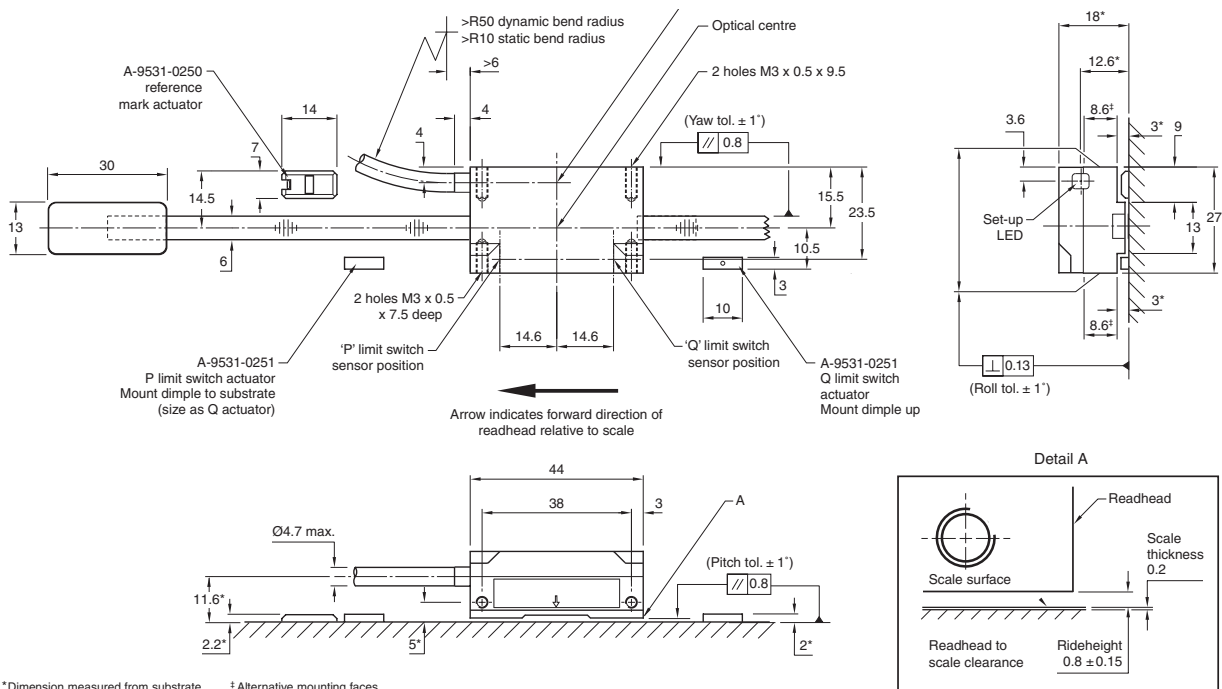
Recommended signal termination



Standard RS422A line receiver circuitry

General outline and dimensions

Dimensions and tolerances in mm



* Dimension measured from substrate † Alternative mounting faces

Operating and electrical specifications

Maximum speed	6 m/s	Minimum recommended counter clock frequency (MHz) = encoder velocity (m/s) x 4 (safety factor)
Power supply	5 V ± 5% 120 mA (typical)	
Temperature	Storage -20 °C to +70 °C Operating 0 °C to +55 °C	
Sealing	IP50 (readhead only)	
Shock (non-operating)	1000 m/s ² , 6 ms, ½ sine BS EN 60068-2-27:1993 (IEC 68-2-27:1987)	
Vibration (operating)	100 m/s ² max @ 55 Hz to 2000 Hz BS EN 60068-2-6:1996 (IEC 68-2-6:1995)	
Mass	Readhead 50 g Cable 38 g/m	
EMC compliance (system)	BS EN 61326	
Cable	Flex life >20 x 10 ⁶ cycles at 50 mm bend radius	
Cable length	1.5 m or 3 m	
Connector	15 pin 'D' type plug	

Technical specifications

Digital output resolution	1 µm
Scale type	Reflective gold plated steel tape with protective lacquer coating and self-adhesive backing
Scale pitch	40 µm
Scale length	1 m – 20 m
Scale accuracy	±25 µm/m without end clamp fixing or calibration
Linearity	±5 µm/m ±1 µm/60 mm
Expansion coefficient	Matches that of substrate material with scale ends fixed by epoxy mounted end clamps
End fixing	Epoxy mounted end clamps (A-9523-4015) using 2 part epoxy adhesive (A-9531-0342)
Reference mark/limit switch	
Type	Magnetic actuator
Position	One or more at user selected locations

For worldwide contact details, please visit our main website at www.renishaw.com/contact

