RGH26 series - serial communications readhead system

- **Non-contact open optical system**
- **Integral interpolation**
- **Mitsubishi compatible serial communications**
- **Maximum speed up to 6m/s**
- **Resolutions from 5µm to 0.5µm**
- **Integral reference and dual limit sensors**
- **No interface required**
- **Integral set-up LED**
- **Uses RGS-S self adhesive scale**

Serial communication (dual limit) range	Compatible Mitsubishi products
RGH26P - 5µm resolution	**MELSERVO®-J2-Super series**
RGH26Q - 1µm resolution	
RGH26R - 0.5µm resolution	

The RGH26 readheads are a new addition to Renishaw's proven RG2 range of linear encoder systems. The RG2 range consists of non-contact optical encoders designed for precision position feedback solutions. The system uses a reflective tape scale scanned by a readhead chosen from a range of options. It offers industry standard digital square wave, analogue sinusoidal, and now Mitsubishi-compatible serial communication signal formats. Renishaw's patented filtering optical scheme is used in all RG2 linear encoders and gives outstanding performance combined with a high tolerance to dust, scratches and light oil contamination.

The RGH26 range has been specifically designed for use with Mitsubishi's MELSERVO®-J2-Super series range of servo amplifiers. The RGH26 range offers exceptional high speeds of up to 6m/s with high resolutions of up to 0.5µm.

Unlike other serial communication systems for linear encoders, the RGH26 does not require a separate bulky interface. Renishaw's innovative electronics design means that all of the interpolation and serial conversion is contained within the same compact body as the popular RGH22. The incremental count takes place within the readhead, resulting in remarkable system noise immunity.

Dual limit sensors have been incorporated as standard, offering two dedicated signal outputs, for left and right end-of-axis travel indication. A repeatable reference mark output is also included, along dedicated real-time channels, as well as part of the serial word.

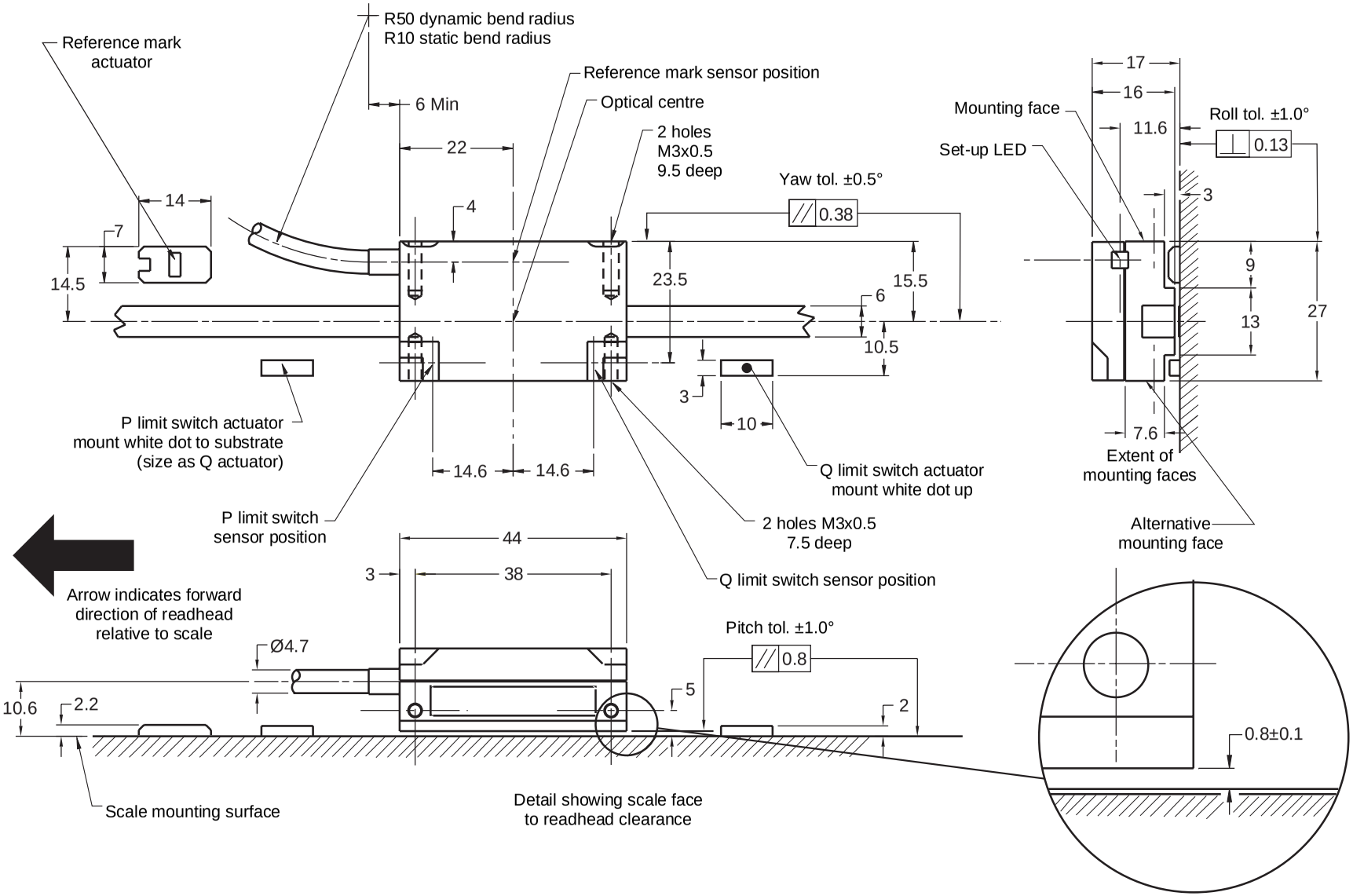
The class-leading compact size, exceptional high speed, high accuracy, and zero-friction configuration make the RGH26 range the encoder of choice for linear feedback applications wherever a MELSERVO®-J2-Super is used.

RENISHAW®

DATA SHEET

General outline and dimensions

Dimensions in mm



Operating and electrical specifications

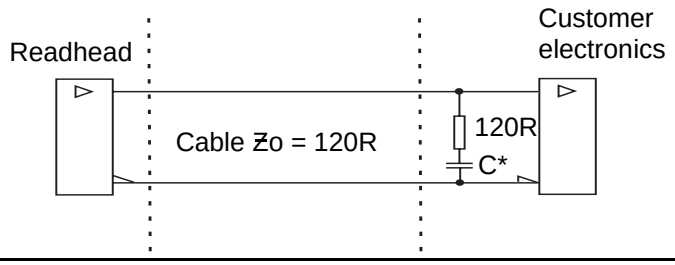
Power supply	5V ±5% 230mA
Temperature	Storage -20°C to +70°C Operating 0°C to +55°C
Humidity	10 - 90% RH non-condensing
Sealing	IP50
Acceleration	operating 300m/s^2
Shock (non-operating)	1000m/s^2, 11ms, ½ sine
Vibration (operating)	100m/s^2 55 to 2000Hz as per IEC 68-2-6
Mass	Readhead 45g Cable 38g/m
EMC compliance (system)	BS EN 50081-2 BS EN 50082-2 BS EN 55011
Cable	12 core, double shield, outside dia. 4.7mm. Flex life >10 x 10^6 cycles at 50mm bend radius
Connector	N - 15 pin D type plug
Maximum speed (green LED at set-up)	RGH26P (5µm) 6.0m/s peak, 5.0m/s constant, 4.0m/s rated RGH26Q (1µm) 4.6m/s peak, 4.0m/s constant, 3.2m/s rated RGH26R (0.5µm) 2.3m/s peak, 2.0m/s constant, 1.6m/s rated

Recommended signal termination

Channels LZ and LZR (Reference mark output) (cannot be connected directly to MELSERVO®-J2-Super)

* Optional power saving capacitor, for recommended values see below:

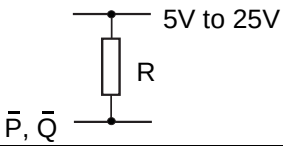
Cable length	C
<25m	4n7F
>25m	10nF



Standard RS485 line transceiver circuitry

Channels $\bar{P}$ and $\bar{Q}$ (Dual limit outputs) (cannot be connected directly to MELSERVO®-J2-Super)

Open collector output



Select R so that the maximum current does not exceed 20mA. Alternatively, a suitable relay or opto-isolator may be used.
Actuation device: RGP22S, RGP22SM or RGP22SL

CONT (2-4 wire communications select)

For 2-wire communication, leave CONT floating
For 4-wire communication, connect CONT to 0V

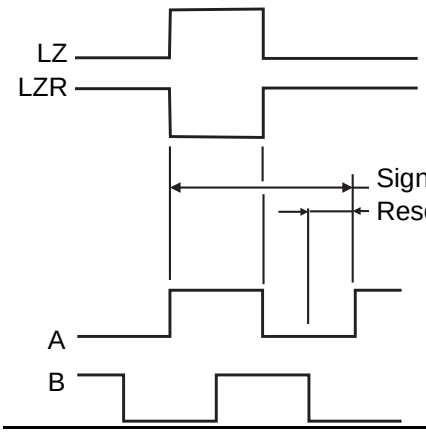
Channels MD, MDR, MR, MRR

These channels should be connected to the relevant input of the MELSERVO®-J2-Super

Signal specifications

Channels LZ and LZR

Form Square wave differential line driver to EIA RS422



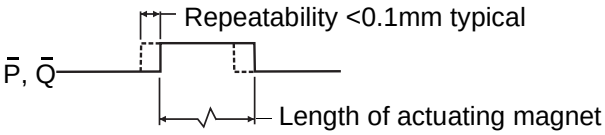
Synchronised pulse LZ and LZR occurs when A is high. Repeatability of position (uni-directional) maintained within ±10°C from installation temperature and for speed <250mm/s. Signals A and B are incremental signals that occur inside the readhead. A and B are not available as outputs.

Model	P(µm)	S(µm)
RGH26P	20	5
RGH26Q	4	1
RGH26R	2	0.5

Actuation device RGM22S.

Channels $\overline{P}$ and $\overline{Q}$

Form Open collector output

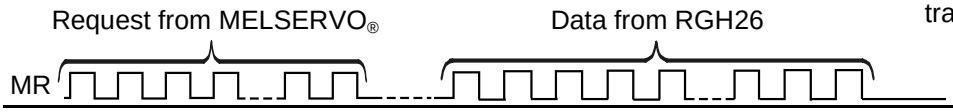


Operating voltage = 5V to 25V
Maximum current = 20mA

Actuation device: RGP22S, RGP22SM or RGP22SL

2-wire serial communication (CONT left floating)

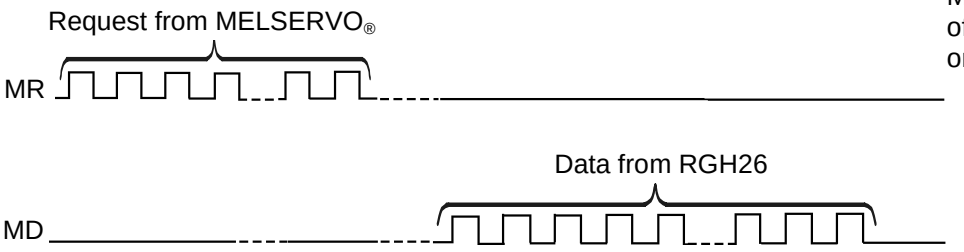
Form Square wave differential transmission/receiving to EIA RS485



The inverse of this signal is transmitted along MRR

4-wire serial communication (CONT connected to 0V)

Form Square wave differential transmission/receiving to EIA RS485



MRR and MDR (the inverse of MR and MD) have been omitted for clarity

IMPORTANT: A reference mark (RGM22S) must be fitted to the axis to enable the use of the RGH26.

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