

# RGH26 series serial comms readhead



**The RGH26, based on Renishaw's RG2 range of linear encoders, has been specifically designed for use with Mitsubishi's MELSERVO®-J2 Super series of servo amplifiers. The RGH26 offers speeds of up to 6 m/s with resolutions to 0.5 µm.**

The RG2 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.

Unlike other serial communication linear encoders, the RGH26 does not require a separate bulky interface. Renishaw's innovative electronics, interpolation and serial conversion are all contained within the same compact body of the popular RGH22. The incremental count takes place within the readhead, resulting in exceptional 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 the encoder of choice for linear feedback applications wherever a MELSERVO® J2 Super is used.

**Serial communication (dual limit) range**

RGH26P - 5 µm resolution  
RGH26Q - 1 µm resolution  
RGH26R - 0.5 µm resolution

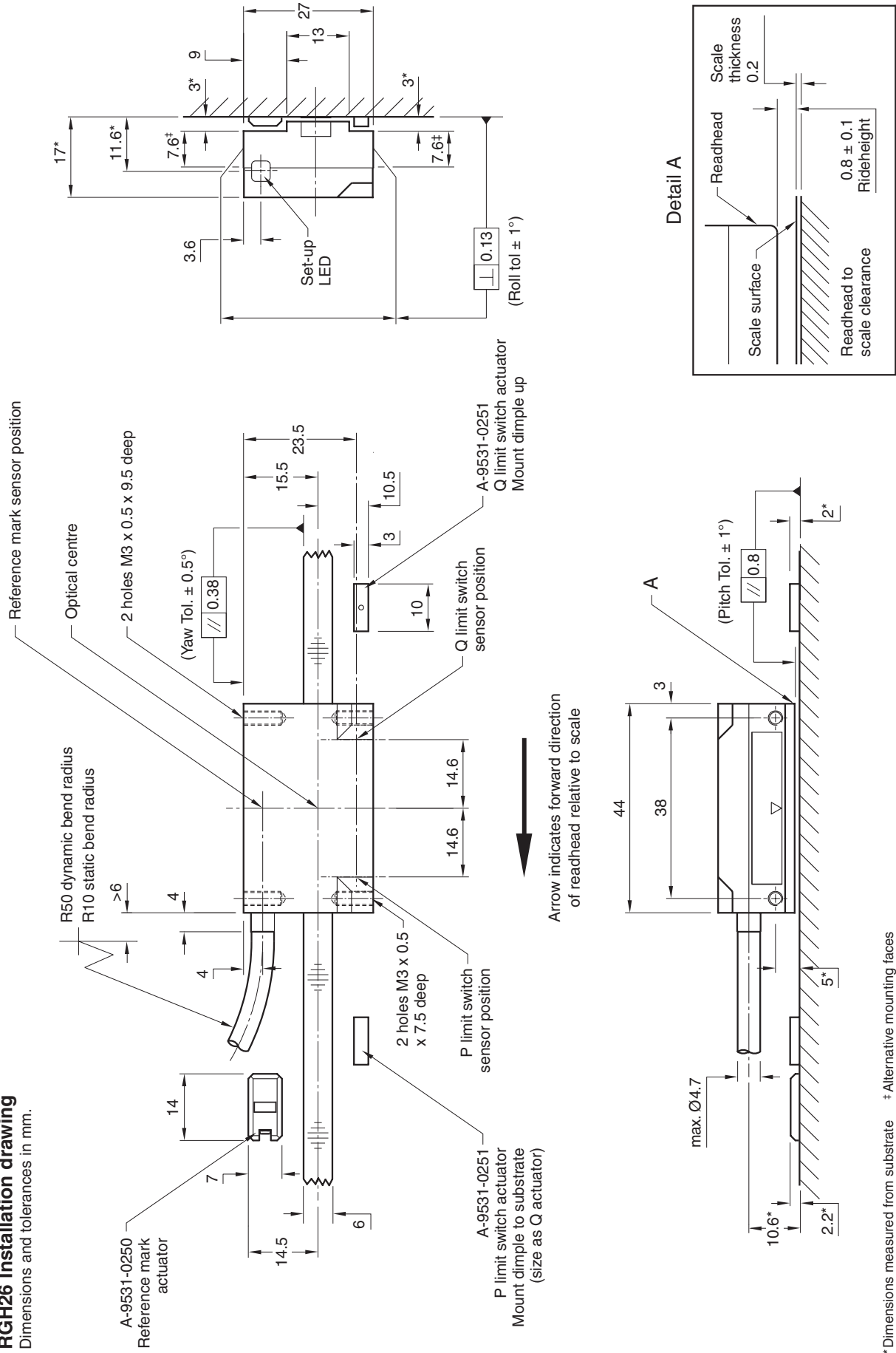
**Compatible Mitsubishi products**  
MELSERVO®-J2 Super series

- Non-contact open optical system
- Integral interpolation
- Mitsubishi compatible serial communications
- Speeds up to 6 m/s
- Resolutions from 5 µm to 0.5 µm
- Integral reference and dual limit sensors
- No interface required
- Integral set-up LED
- Uses RGS20-S self-adhesive scale

**Data sheet**  
RGH26

**RGH26 Installation drawing**

Dimensions and tolerances in mm.



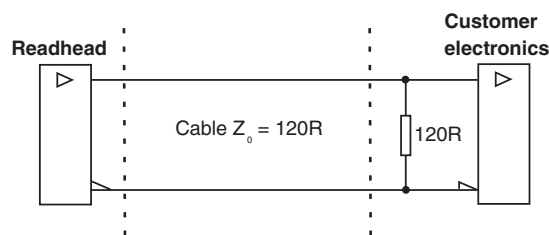
\* Dimensions measured from substrate † Alternative mounting faces

## Operating and electrical specifications

<b>Power supply</b>	5 V $\pm$ 5%, 245 mA maximum without LZ/LZR terminated 270 mA maximum with LZ/LZR terminated with 120 $\Omega$ . Renishaw encoder systems must be powered from a 5 V dc supply complying with the requirements for SELV of standard EN (IEC) 60950. Ripple 200 mVpp @ frequency up to 500 kHz max.
<b>Temperature</b>	Storage -20 °C to +70 °C    Operating 0 °C to +55 °C
<b>Humidity</b>	Storage 95% maximum relative humidity (non-condensing) Operating 80% maximum relative humidity (non-condensing)
<b>Sealing</b>	IP50
<b>Acceleration (operating)</b>	500 m/s <sup>2</sup> BS EN 60068-2-7:1993 (IEC 68-2-7:1983)
<b>Shock (non-operating)</b>	1000 m/s <sup>2</sup> , 6 ms, 1/2 sine BS EN 60068-2-27:1993 (IEC 68-2-27:1987)
<b>Vibration (operating)</b>	100 m/s <sup>2</sup> , 55 Hz to 2000 Hz BS EN 60068-2-6:1996 (IEC 68-2-6:1995)
<b>Mass</b>	Readhead 45 g    Cable 38 g/m
<b>EMC compliance (system)</b>	BS EN 61326
<b>Cable</b>	12 core, double shielded, maximum diameter 4.7 mm Flex life >20 x 10 <sup>6</sup> cycles at 50 mm bend radius
<b>Connector</b>	15 pin 'D' type plug
<b>Maximum speed</b> (green LED at set-up)	RGH26P (5 $\mu$ m)    6.0 m/s peak, 5.0 m/s constant, 4.0 m/s rated RGH26Q (1 $\mu$ m)    4.6 m/s peak, 4.0 m/s constant, 3.2 m/s rated RGH26R (0.5 $\mu$ m)    2.3 m/s peak, 2.0 m/s constant, 1.6 m/s rated

### Recommended signal termination

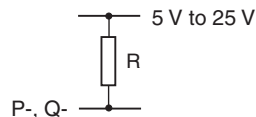
Channels LZ and LZR (Reference mark output) (Cannot be connected directly to MELSERVO®-J2-Super)



Standard RS485 line transceiver circuitry

Channels P- and Q- (Dual limit output) (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: A-9531-0251, A-9531-2052 or A-9531-2054

CONT (2-4 wire communications select)

For 2-wire communication, leave CONT floating

For 4-wire communication, connect CONT to 0V

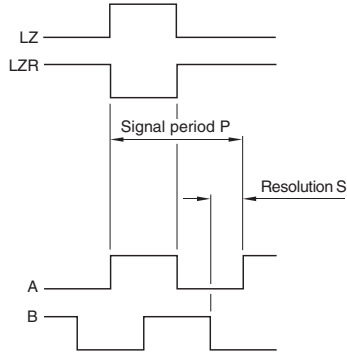
Channels MD, MDR, MR, MRR

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

## Output specifications

### Channels LZ and LZR

Form - Square wave differential line driver to EIA RS422A



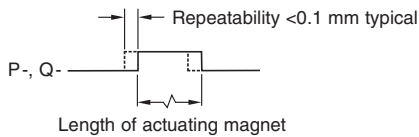
Synchronised pulse LZ and LZR occurs when A is high.  
 Repeatability of position (uni-directional) maintained within  $\pm 10^\circ\text{C}$  from installation temperature and for speed  $< 250\text{mm/s}$ .  
 Signals A and B are incremental signals that occur inside the readhead. A and B are not available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

Actuation device A-9531-0250

Model	P ( $\mu\text{m}$ )	S ( $\mu\text{m}$ )
RGH26P	20	5
RGH26Q	4	1
RGH26R	2	0.5

### Channels P- and Q-

Form - open collector output

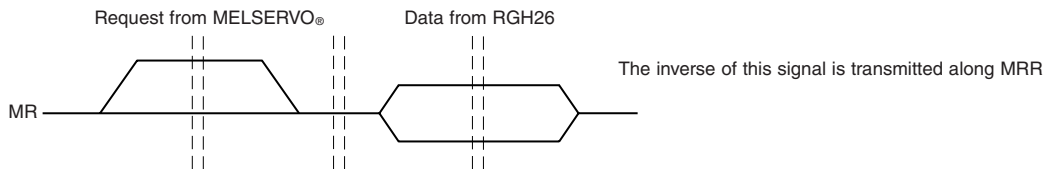


Operating voltage = 5 V to 25 V  
 Maximum current = 20 mA

Actuation device: A-9531-0251, A-9531-2052 or A-9531-2054

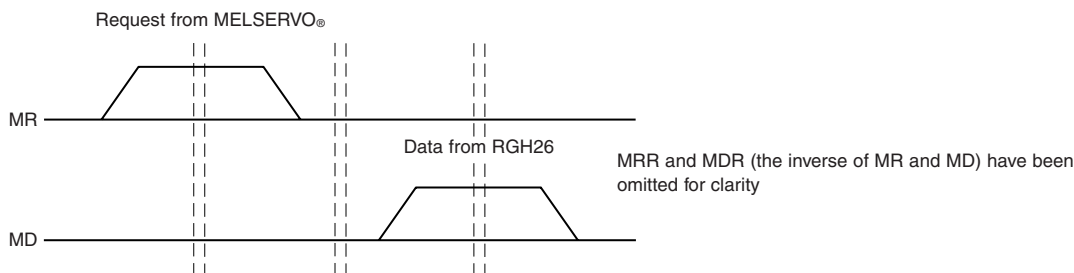
### 2-wire serial communication (CONT left floating)

Form - Square wave differential transmission/receiving to EIA RS485



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

Form Square wave differential transmission/receiving to EIA RS485



**IMPORTANT: A reference mark (A-9531-0250) must be fitted to the axis to enable the use of the RGH26.**

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