

RELA absolute high accuracy Invar® scale

System features

- Single track optical absolute scale
- $\pm 1 \mu\text{m}$ guaranteed accuracy
- $30 \mu\text{m}$ scale pitch ensures exceptional motion control performance
- Robust Invar offers $\sim 0.6 \mu\text{m}/\text{m}/^\circ\text{C}$ (0°C to 30°C) thermal expansion plus ease of handling and installation
- Scale mounting options, self-adhesive or clips and clamps
- Available in lengths up to 1130 mm
- $\pm 40 \text{ nm}$ sub-divisional error for smooth velocity control
- Resolution to 1 nm
- Maximum speed of 100 m/s

RELA absolute high accuracy Invar scale is compatible with Renishaw's revolutionary new, true absolute optical encoder system, RESOLUTE™.

RELA offers certified $\pm 1 \mu\text{m}$ accuracy, combined with low thermal expansion Invar to suit the most demanding precision applications. The high performance of the scale is augmented by Renishaw's RESOLUTE absolute optical readhead offering $\pm 40 \text{ nm}$ sub-divisional error, resolution to 1 nm, low noise (jitter) and a maximum speed of 100 m/s.

RELA provides good dirt immunity and ease of set-up, whilst offering levels of performance previously only available from delicate fine pitch systems.

Specifications

Scale	Track	Single absolute optical track
	Pitch	30 µm
	Form	1.5 mm × 14.9 mm (H × W)
	Scale lengths (mm)	80, 130, 180, 230, 280, 330, 380, 430, 480, 530, 580, 630, 680, 780, 880, 980, 1030, 1130
	Measuring length	See below
	Accuracy	Certified to ±1 µm, calibrated traceable to International Standards
	Material	Invar
	Thermal expansion	~0.6 µm/m/°C (0 °C to 30 °C) <1.4 µm/m/°C (30 °C to 100 °C)
	Mounting	Epoxy datum point and adhesive tape or datum clamp and mounting clips Adhesive backing tape is included with all scale (nominal thickness 0.2 mm)
	Mass	180.7 g/m

Measuring lengths

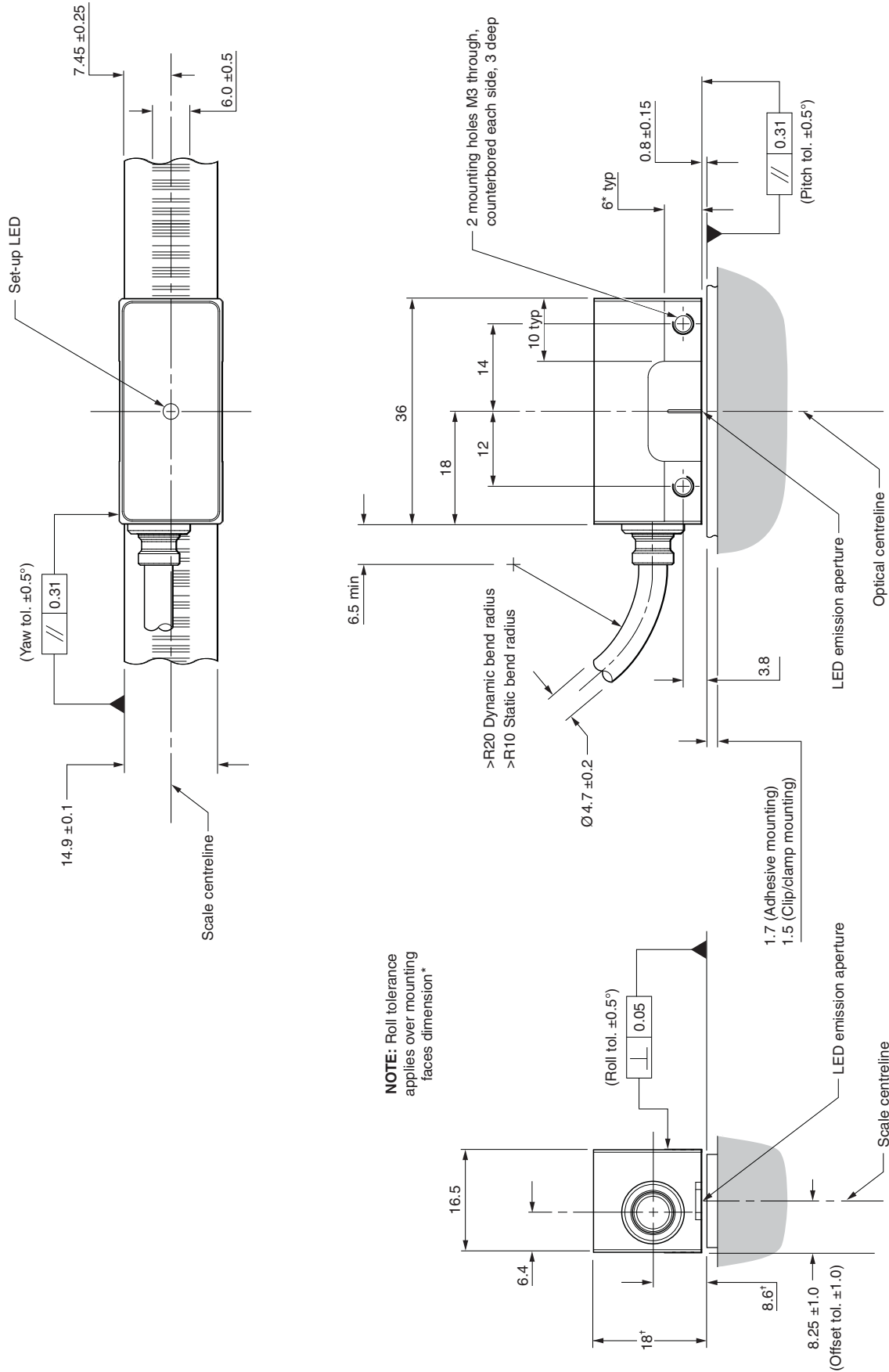
Scale length L (mm)	80	130	180	230	280	330	380	430	480
Measuring length ML (mm)	70	120	170	220	270	320	370	420	470

Scale length L (mm)	530	580	630	680	780	880	980	1030	1130
Measuring length ML (mm)	520	570	620	670	770	870	970	1020	1120

For further information on installation and mounting options, please refer to the RESOLUTE linear installation guide (M-9553-9128), which is available from your local representative or can be downloaded from www.renishaw.com or www.renishawsupport.com

RESOLUTE installation drawing (on RELA scale)

Dimensions and tolerances in mm

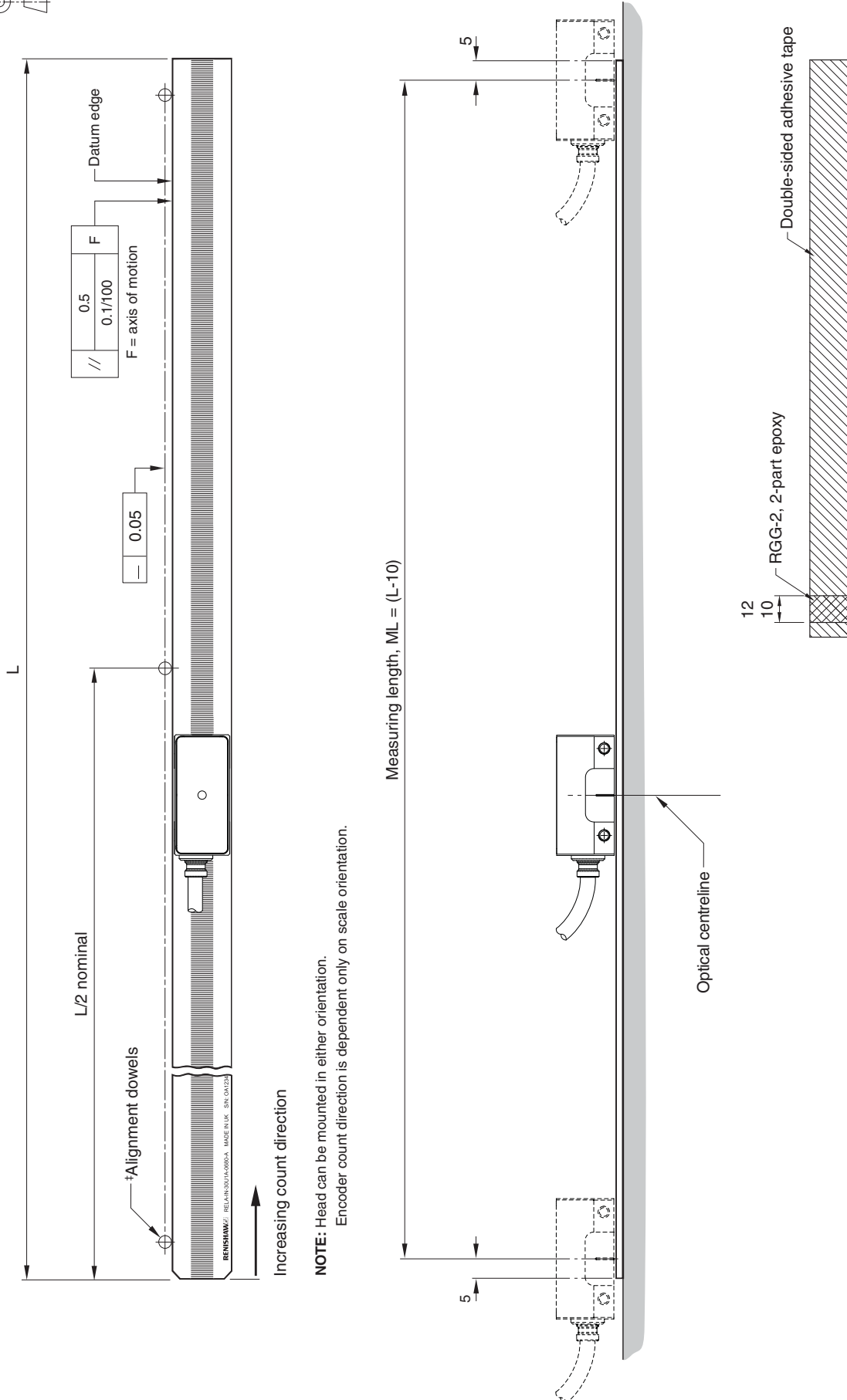


NOTE: Roll tolerance applies over mounting faces dimension*

*Dimensions from scale surface

RELA installation drawing (adhesive mount)

Dimensions and tolerances in mm



NOTE: Head can be mounted in either orientation.
 Encoder count direction is dependent only on scale orientation.

NOTE: Adhesive mounted scale should not be reused after installation.
 † When scale is to be mounted vertically, position the dowels so that the datum edge is supported.

Linear scale part numbers

Part number is A-9766-xxxx where xxxx is the total scale length in mm (see Actual spar length table below)

Actual spar length (mm)

0080	0330	0580	0980
0130	0380	0630	1030
0180	0430	0680	1130
0230	0480	0780	
0280	0530	0880	

RELA compatible readhead



RESOLUTE

Installation guide M-9553-9128
Data sheet FANUC L-9517-9442
Data sheet BiSS L-9517-9448
Data sheet Panasonic L-9517-9460

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