RDP Customer Document

Technical Manual

APPLICATION DETAILS FOR THE RL RANGE OF LOAD CELLS

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APPLICATION DETAILS FOR THE RL RANGE OF LOAD CELLS

For general handling and installation application notes refer to customer document CD1039.

The RL range comprises flat 'pancake' (compression and universal) load cells, and beam load cells for weighing and force measurement applications.

1. Summary of models in the RL range

Model	Type	Ranges (kg)	Material	Sealing	Nominal Bridge Resistance (ohms)
RLC	Compression	100 to 50,000	Tool steel	IP65	350/700
RLT	Tension	5 to 2,500	Tool steel	IP65	350
RLW	Weighing	10 to 1,500	Tool steel	IP67	350
RLS	Single point weighing	10 to 100	Aluminium Alloy	IP65	350
RLU	Tension/compression	100 to 10,000	Tool steel	IP65	350/700

2. The materials used in the construction of the load cells are shown in the table above. As an option it is possible to replace the tool steel with stainless steel.

3. The nominal bridge resistances given (see table above) are for the output (green-white cable cores). The tolerance is less than ± 10 ohm. The input resistance is slightly higher – typically 385 ± 30 ohms for nominal 350 ohm bridges and 750 ±30 ohms for nominal 700 ohm bridge.

4. The sensitivity (all models) is 2 mV/V FS ±10% eg at 10 volts excitation the full load output will be 20 mV ± 10%.

5. The safe overload capacity is 150% FS (all models) and the ultimate overload capacity is 200% FS.

6. Insulation resistance: >=1000MΩ at 50VDC (all models).

7. Performance:

	Percentage of full range	
Parameter	Models U, C, T, W	Model S
Non-linearity (max)	±0.03%	±0.02%
Hysteresis (max)	±0.03%	±0.02%
Non-repeatability (max)	±0.03%	±0.02%

8. Environmental (all models):

Operating temperature range: -20 to +60°C
Compensated temperature range: -10 to +40°C

Temperature Coefficients	Models		
	U,C	S	T, W
	% FS per °C	% FS per °C	% FS per °C
Zero (max)	±0.002	±0.0025	±0.003
Span (max)	±0.002	±0.0025	±0.003

9. Electrical connection:

Each load cell is fitted with an integral 3 metre long four core screened cable. The screen is not connected to the load cell body. The load cell body will normally be grounded via the mounting metalwork. The cable screen should be connected to the instrument.

The cable cores are:

Core Colour	
Red	excitation positive
Black	excitation negative
Green	output positive
White	output negative

Connection diagrams showing RL connections to various RDP instruments are:

Diagram	Instrument	Diagram	Instrument
D17031	E308	D17036	TR150
D17033	S7DC	D17035	611
D17034	S7MZ	D17037	E725-DC1
D17889	DR7DC		

10. Outline Drawings:

Drawing	Load cell model	Drawing	Load cell model
D16999	RLC	D17003	RLS
D17000	RLT	D16846	RLU
D17002	RLW		

11. Calibration

Each load cell is individually calibrated with equipment traceable to national standards, and an individual sensitivity figure is given.

RDP offers a calibration service when a load cell and instrument are purchased together. The instrument set-up to read the load/force in units specified by the customer.