

Technical Manual  
**LVDT'S**  
**FITTED WITH E748C IN-LINE MODULES**

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Affirmed by Declaration  
of Conformity

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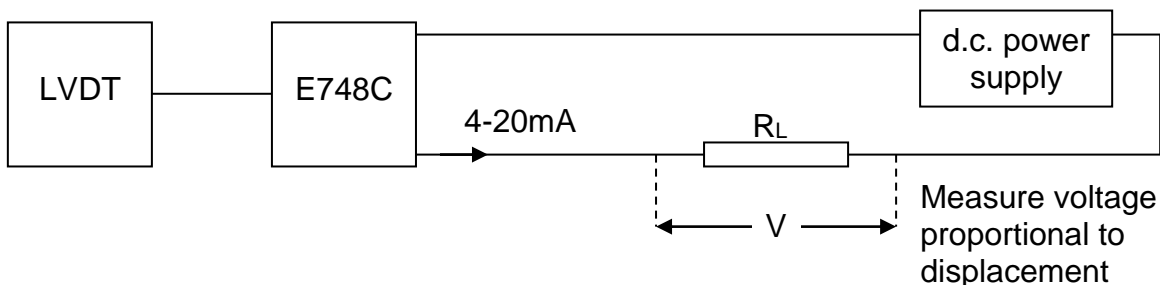
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## LVDT'S FITTED WITH E748C IN-LINE MODULES

The E748C in-line module is a simple method of converting an AC LVDT into a 4-20 mA, loop powered, transducer. The E748C contains high quality electronics for energisation and signal conditioning.

### Connections:

There are two connections only to the LVDT + E748C combination. These are connected to the supply and receiver (RL) as shown below. The polarity of the two connections is immaterial.



### Loop Resistance

The total external circuit resistance comprises the receiver load,  $R_L$ , and the cable resistance (= core resistance x 2 x distance). The allowable maximum loop resistance is given by the formulae:-

$$R_{\max} = 50(V_s - 11)$$

Where the supply voltage is higher than 28 volts **and** the ambient temperature higher than 25°C, then a minimum value of loop resistance is required:

$$R_{\min} = (V_s - 28)(t - 25)$$

where  $V_s$  = supply voltage (volts)

$t$  = ambient temperature (°C)

### Supply Variation

The effect on the output signal current by variation of the supply voltage is less than 0.01mA per volt.

### Primary Impedance

The E748C circuit takes its power from the 4mA of the 4 to 20mA loop. Consequently the transducer excitation available is limited to 1 Volt rms 5kHz at 5mA maximum. This will drive an LVDT transducer with a primary impedance as low as 200 ohms but in practice, to ensure good linearity, we recommend a low limit of 250 ohms.

Currently some of our standard LVDTs have primary impedances lower than 250 ohms (see list below). These coils must be supplied as high impedance versions, designated TM202.

**TABLE 2**

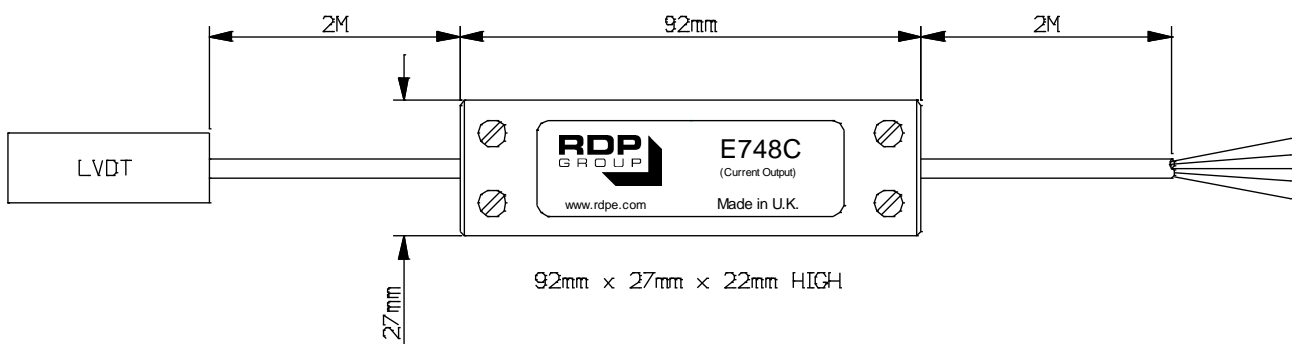
| LVDT's that will NOT work with the E748C (Zp <250 ohms)   | LVDT's that will work with the E748C (Zp >250 ohms)                         |
|---|---|
| D5/25<br>D5/300<br>D5/400<br>ACT1000<br>ACT2000<br>ACT3000<br>ACT4000<br>ACT6000<br>ACT8000<br>ACT15000<br>ACT18500 | ACT500<br>ACT10000<br>D5/10, 20, 40,100, 200<br>MD5/500<br>All D6<br>All GT |

**Specification:**

|                              |   |
|------------------------------|---|
| Supply                       | 12 to 36 Volts dc   |
| Linearity                    | 0.5% FS standard  |
| Loop Resistance              | 0-50 ohms with 12V supply<br>0-650 ohms with 24V supply<br>R-min -1250 ohms with 36V supply<br>(see formulae for R min) |
| Bandwidth                    | 250Hz (flat)  |
| Noise                        | 50µA p-p max  |
| Span Temperature Coefficient | 0.03% FS/°C (typical)   |
| Operating Temperature        | -10°C to +70°C  |

**Note:** The transducer is factory-calibrated with a supply of 24V.

**Dimensions:**



## **WARRANTY AND SERVICE**

### WARRANTY.

R.D.P. Electronics products are warranted against defects in materials or workmanship. This warranty applies for one year from the date of delivery. We will repair or replace products that prove to be defective during the warranty period provided they are returned to R.D.P. Electronics.

This warranty is in lieu of all other warranties, expressed or implied, including the implied warranty of fitness for a particular purpose to the original purchaser or to any other person. R.D.P. Electronics shall not be liable for consequential damages of any kind.

If the instrument is to be returned to R.D.P. Electronics for repair under warranty, it is essential that the type and serial number be quoted, together with full details of any fault.

### SERVICE.

We maintain comprehensive after-sales facilities and the instrument can, if necessary be returned to our factory for servicing.

Equipment returned to us for servicing, other than under warranty, must be accompanied by an official order as all repairs and investigations are subject to at least the minimum charge prevailing at the date of return.

The type and serial number of the instrument should always be quoted, together with full details of any fault and services required.

### IMPORTANT NOTES.

1. No service work should be undertaken by the customer while the unit is under warranty except with the authorisation of RDP Electronics.
2. If the instrument is to be returned to R.D.P. Electronics for repair, (including repair under warranty) it is essential that it is suitably packed and that carriage is insured and prepaid. R.D.P. Electronics can accept no liability whatsoever for damage sustained during transit.
3. It is regretted that the above warranty only covers repairs carried out at our factory. Should the instrument have been incorporated into other equipment that requires our engineers to perform the repair on site, a charge will be made for the engineer's time to and from the site, plus any expenses incurred.

The aforementioned provisions do not extend the original warranty period of any product that has been either repaired or replaced by R.D.P. Electronics.

**THIS WARRANTY MAY BE NULL AND VOID SHOULD  
THE CUSTOMER FAIL TO MEET OUR TERMS OF PAYMENT.**