



# TECHNICAL MANUAL DRAW-WIRE DISPLACEMENT TRANSDUCER TYPE DWT

Doc. Ref CD1004L



BS EN ISO 9001  
Certificate No. FM13141



Affirmed by Declaration  
of Conformity

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1	MECHANICAL INSTALLATION.....	3
1.1	Dimensions – DWT-10 – Welded Steel Box .....	3
1.2	Dimensions – DWT-20 – Sealed Die-Cast Aluminium Box.....	4
1.3	Dimensions – DWT-30 – Welded Steel Box .....	4
1.4	Sealing.....	5
2	ELECTRICAL INSTALLATION.....	5
2.1	Option A.....	5
2.2	Option C.....	5
2.3	Option D.....	6
3	OPTIONAL DIGITAL DISPLAY (OPTION CODE R) .....	7
4	PART NUMBER STRUCTURE .....	7
5	SPECIFICATION .....	7
6	WARRANTY AND SERVICE.....	9

# 1 MECHANICAL INSTALLATION

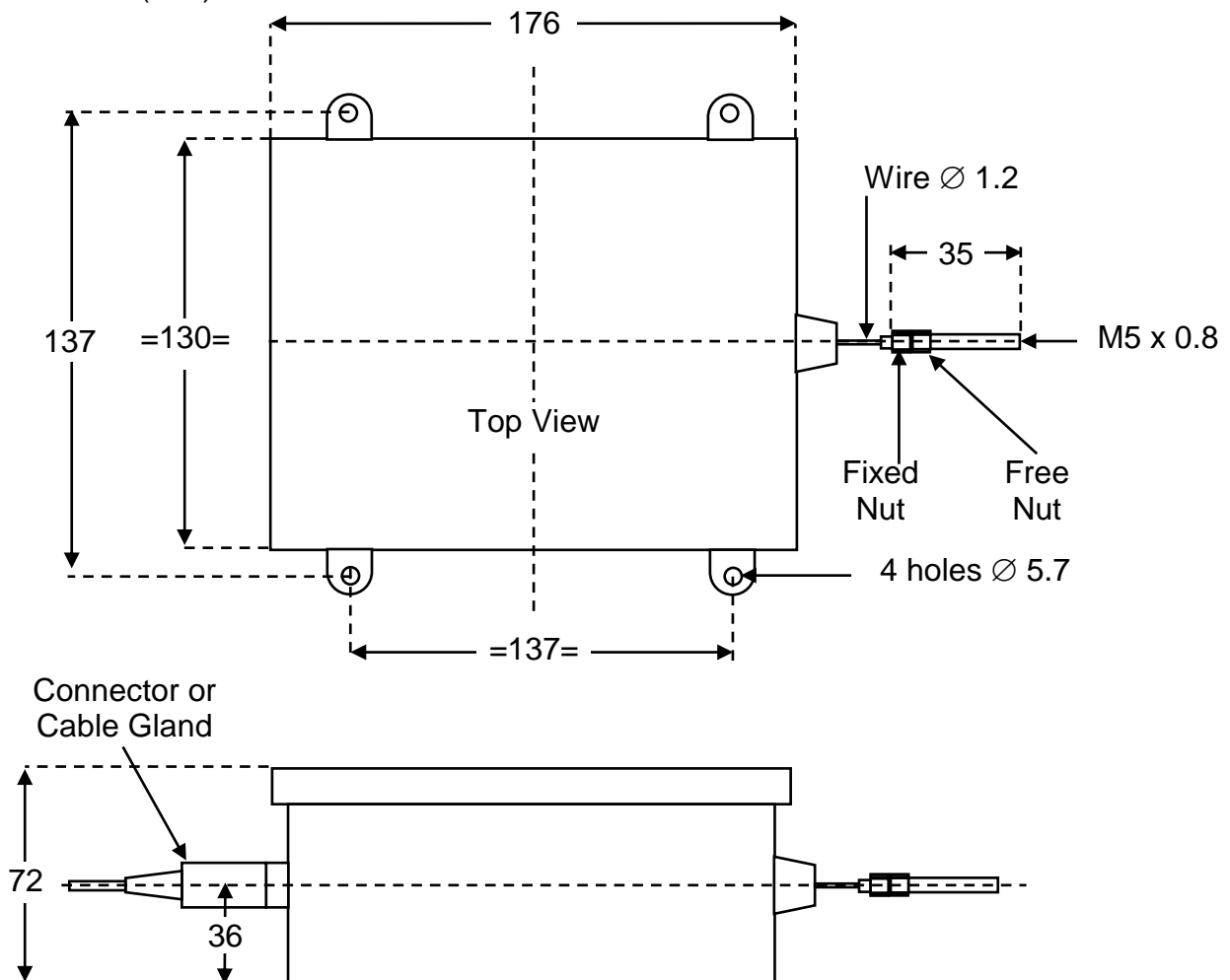
Transducer may be mounted by means of the four 6.4mm (0.25") holes in either a horizontal or vertical plane. Cable should be attached to equipment by bolting the threaded rod at the end of the cable to a suitable bracket, etc., mounted on the moveable part which is to be measured. **CAUTION: Try to avoid kinking cable and DO NOT ALLOW CABLE TO "SNAP BACK".**

**Note:** It is not necessary to keep the cable fully retracted as a certain amount of mechanical offset may be "zeroed out" by means of the electrical "zero adjust" (on options A and C only).

**WARNING:** Please ensure that, with the moveable part to be measured at its fully extended position, the transducer is still within its maximum stroke, otherwise damage may occur to the transducer.

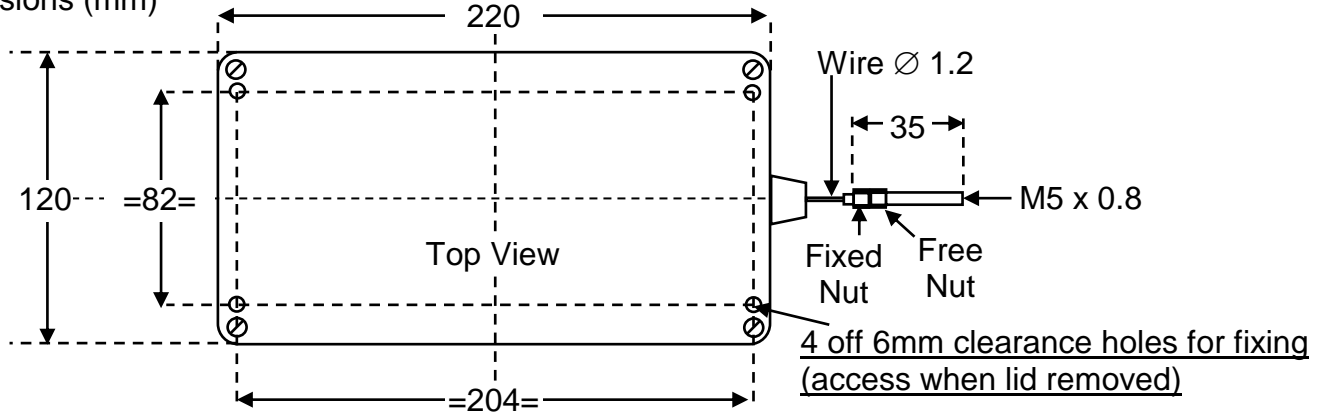
## 1.1 Dimensions – DWT-10 – Welded Steel Box

Dimensions (mm)

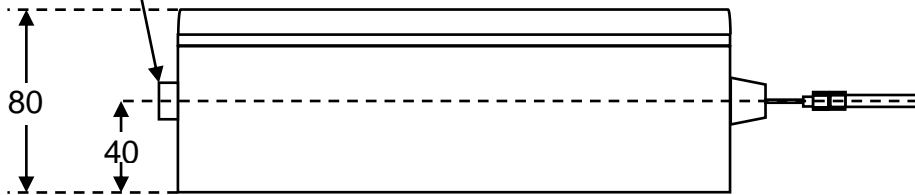


### 1.2 Dimensions – DWT-20 – Sealed Die-Cast Aluminium Box

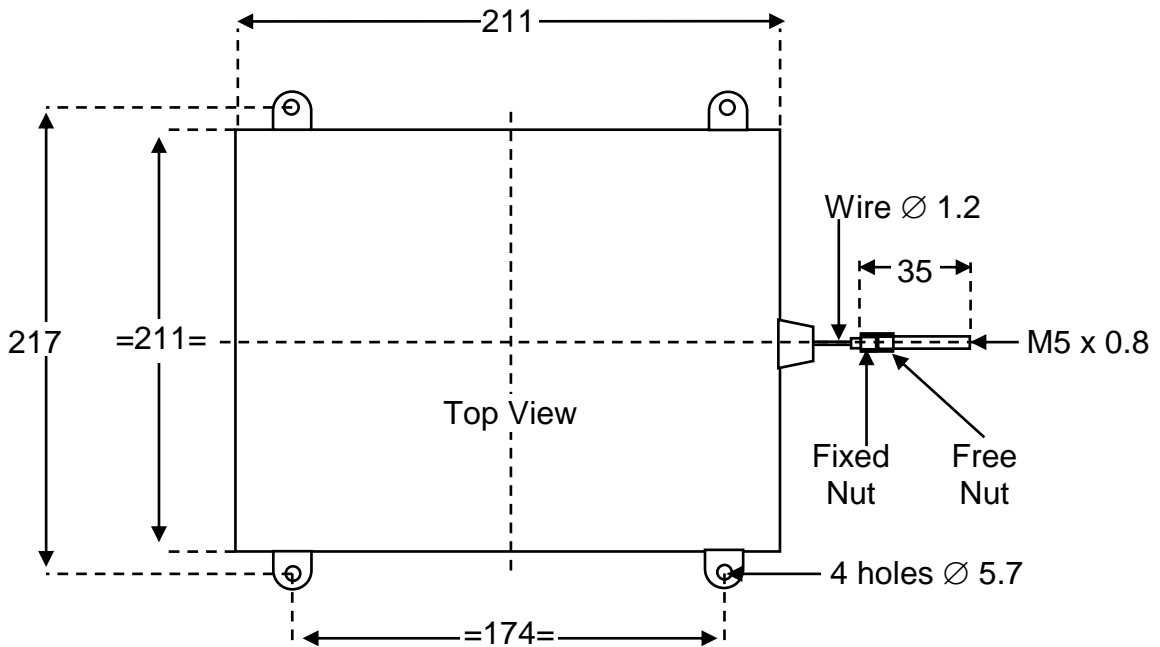
Dimensions (mm)



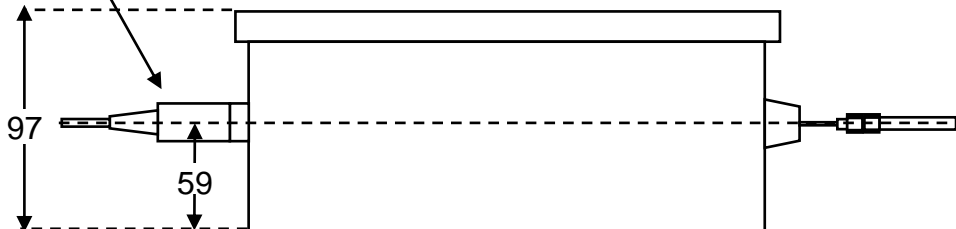
Connector or Cable Gland



### 1.3 Dimensions – DWT-30 – Welded Steel Box



Connector or Cable Gland



## 1.4 Sealing

The seal rating of these products is dictated by the sealing of the moving operating cable.

The seal is a special nylon bush which gives an approximate rating of IP53. Obviously the actual seal effectiveness will be determined by the orientation of the unit, e.g. cable up position will be worst for dust or water ingress.

The IP ratings of other elements are:-

- (a) DWT10 and 30 enclosure (only): IP66
- (b) DWT20 enclosure (only) : IP67
- (c) Cable gland (only) : IP68
- (d) Connector (only) : IP40

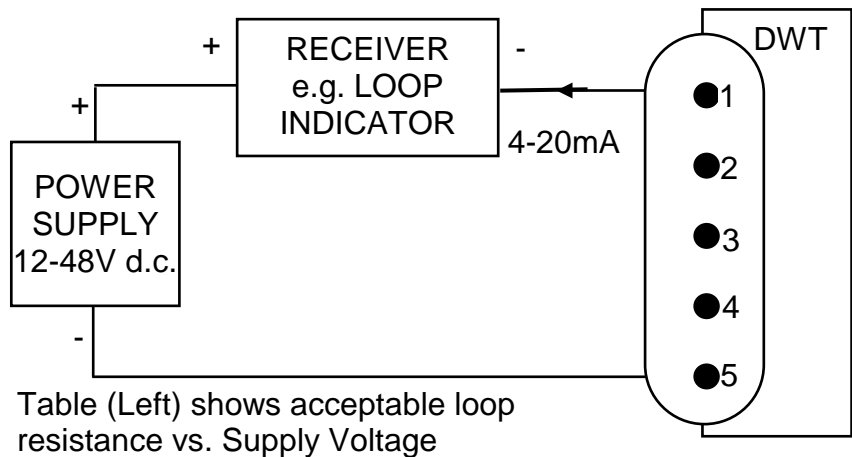
## 2 ELECTRICAL INSTALLATION

The cable gland (connector option 3) is a PG11 size, suitable for cable diameters 5 to 11mm. (Other sizes to order.) The numbers shown apply to the pin number of the DIN connector (Option 1) or terminal number for Option 3.

### 2.1 Option A

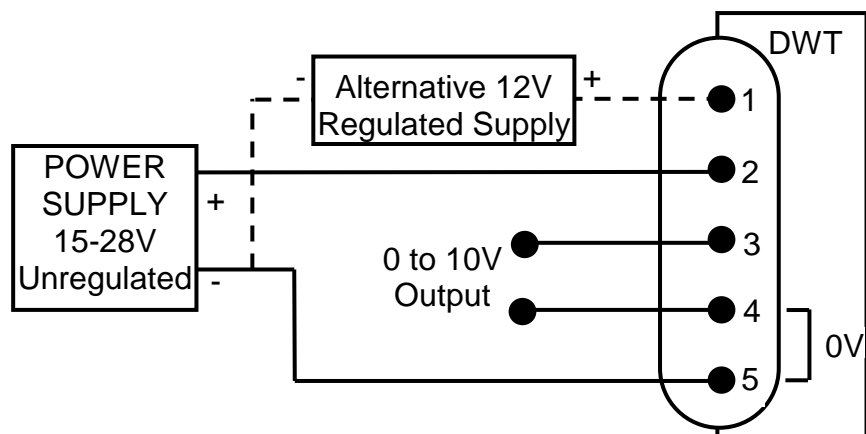
4-20mA 2 wire loop

Supply (Volts)	Loop Resistance ( $\Omega$ )	
	Min	Max
12	0	120
15	0	240
18	0	400
24	0	680
30	0	940
36	280	1220
40	460	1400
48	800	1800



### 2.2 Option C

0 to 10V output

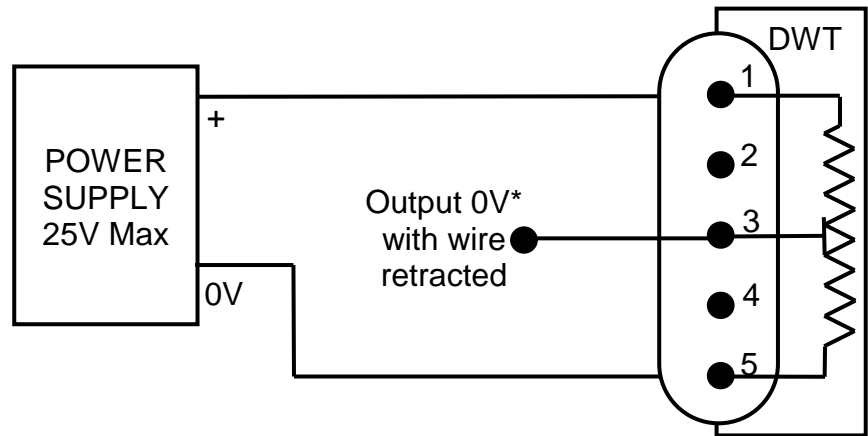


### 2.3 Option D

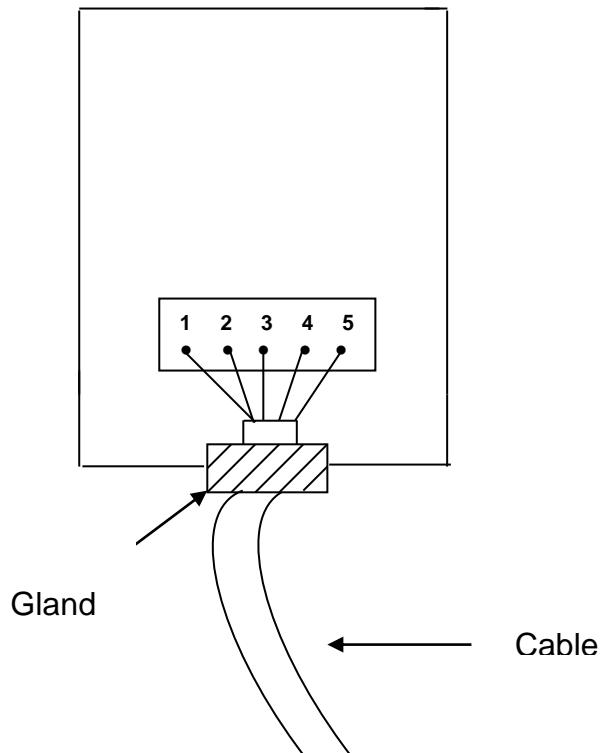
#### Potentiometer Output

Standard potentiometer is 500R, 2W. Others are available to special order

\*The output will not be exactly 0V due to slight mechanical offset



For connections via the cable gland (Option 3), the cable cores are terminated in a printed circuit board mounted connector. This can be unplugged for ease of connection. The fixed part of the connector is numbered as shown below:-



### ADJUSTMENT

With the mechanical actuator in its fully retracted position, adjust ZERO trimmer with a small screwdriver to give a 4mA (or 0v dc if using voltage option) output. Move mechanical actuator to its fully extended position and adjust SPAN to give a 20mA output (or 10v dc if using voltage output option). Repeat above steps until no further adjustment is required.

THE UNIT IS NOW READY FOR USE.

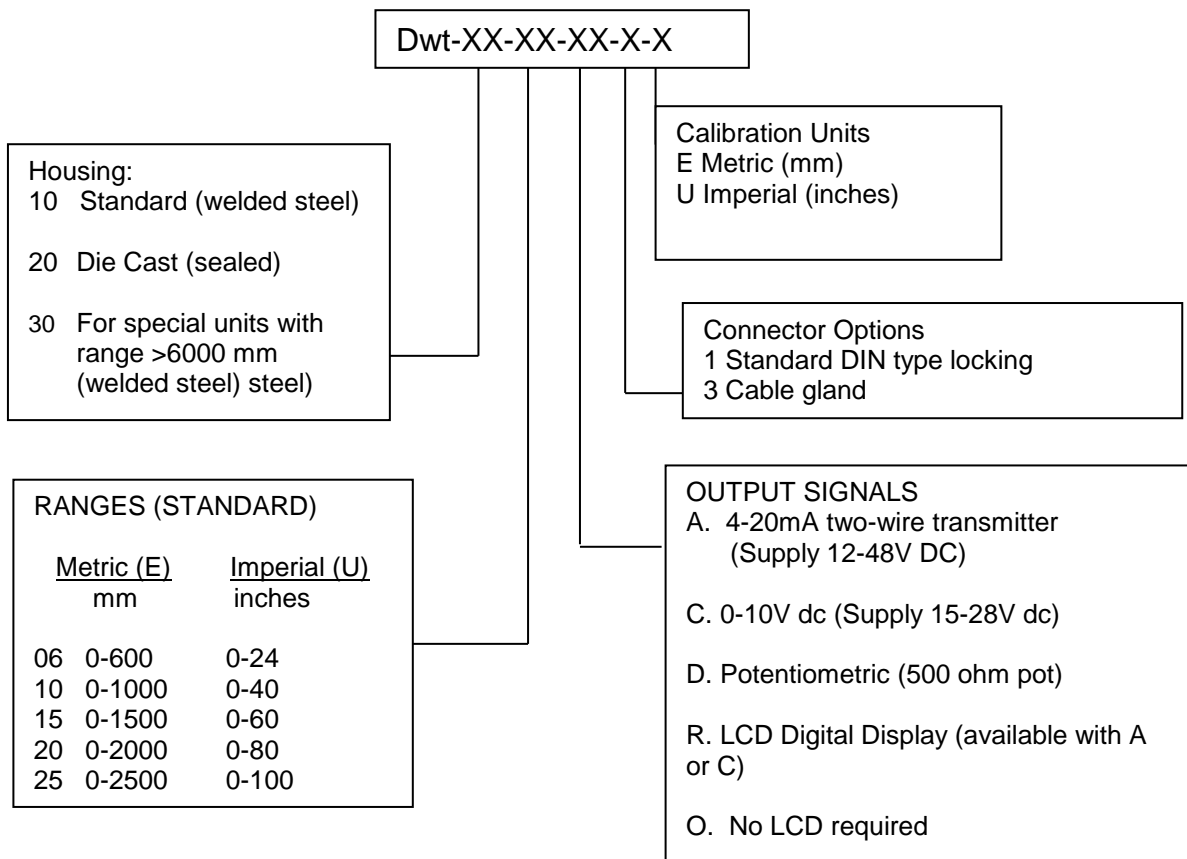
### 3 OPTIONAL DIGITAL DISPLAY (OPTION CODE R)

This feature is the addition of a digital display of the liquid crystal (LCD) type. The display readout is 3½ digits, i.e. 1999 maximum, but is set to read 0 to 100.0 for a cable movement of zero to full scale. Alternative scaling (e.g. in engineering units instead of percentage) can be offered at additional cost.

Option R is always combined with a voltage output (0 to 10V = Option Code C) or a current output (4 to 20mA = Option code A). So, when ordering, use either Option Code CR or AR. Note that with Option A the unit is 'loop powered' (from 4-20mA circuit) and with Option C there is a choice of:-

- (a) 12 volts dc regulated, or
- (b) 15 to 28 volts dc unregulated.

### 4 PART NUMBER STRUCTURE



### 5 SPECIFICATION

Draw wire cable type	Nylon-coated stainless steel with an overall diameter of 1.2mm.
Range and Output	Refer to part number (see above)
Cable Tension	225 grams (constant)
Accuracy	0.2% F.S.
Resolution	0.1% typical

Supply	For Option A: 12 – 48 volts DC
Supply	For Option C: 15 – 28 volts unregulated (11mA) or 12V regulated
Supply	For Option D: 25 volts maximum
Cable Velocity	2-metres/second max.
Protection	Reverse polarity on supply
Electrical Zero	+20% of range
Electrical Span	-50% to +15% of range
Weight	DWT-10:- 1.1kg, DWT-20:- 2.0kg
Seal Rating	See Section 1.4
Temperature Range	Version A, C, D -15°C to +50°C Version R - 5°C to +50°C
Temperature coefficient	0.03% per °C combined (nom) for versions A and C 0.002% per °C for version D (potentiometric)
Vibration	Up to 10g to 2000Hz
Life	10 <sup>6</sup> operations



## **6 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.**