



**EX715**  
STATIC METER





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## 1. Introduction

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The EX715 Static Meter has been designed for the analysis of industrial static electricity problems. It has been certified for use in some hazardous areas.

It is important that the instrument is used correctly. Please read the following operating instructions before use. Also please read the notes on the electric field overleaf which give useful guidelines when measuring static electricity.

The EX715 Static Meter is an invaluable tool in investigating industrial static electricity problems. It is used throughout production and quality control. It helps the operator to analyse the problem scientifically. e.g.

- Find out how much static is present?
- Establish standards of acceptability for static levels in processes.
- Reject material if it is too static generative.
- To see where and how the static is being generated.
- To see if static eliminators are effective and if they are in the best position.

It is essential that you read and understand the complete manual before installing and using this equipment. This is important for safety and for warranty cover.

### 1.1 Explanation of Symbols

#### **Warning!**

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.



#### **Caution!**

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.



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## 2. Checking on Delivered Equipment

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The equipment leaves our factory in suitable protective packaging. Please check that it is undamaged when it arrives. If there is visible damage contact the factory or one of our distributors immediately. Check that the parts which have been delivered are the same as you have ordered.

### **Documentation**

The EX715 comes complete with carry case, Declaration of Conformity and Calibration Certificate.

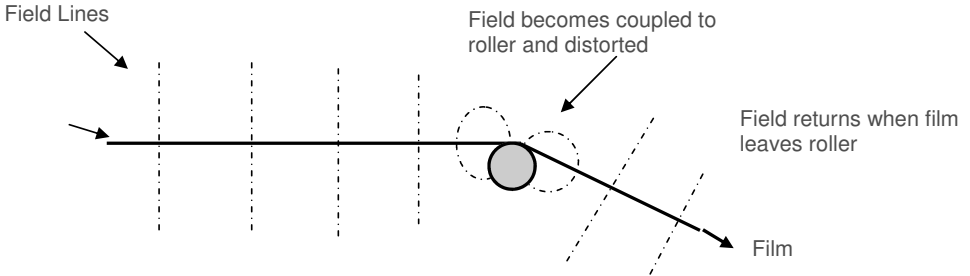
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### 3. Characteristics of the Electric Field

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The electric field has unusual characteristics which should be understood when making electrostatic measurements. These are noted below.

The electric field lines of the static charge radiate vertically from the object. But they are easily distorted by adjacent machinery parts. When the material to be measured is touching a part of the machine, such as a roller it is impossible to make an accurate reading. This is shown in the sketch below.



#### Rule

For a true reading, measure the object when it is in free air and away from machine parts. If this is not possible, accept that the display is under-measuring the charge. This is an important factor when taking readings in confined spaces. The material should never be measured when touching another body. This phenomenon is easier to understand if you charge a sheet of plastic by rubbing it. Then move the sheet towards a wall, with the EX715 measuring the charge at all times. The reading will be about zero when the sheet touches the wall, but will return to its previous level when the sheet is moved away.

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## 4. Operating Instructions

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The earth lead must be used to connect the instrument to a suitable grounded point during operation. This prevents charge building up in the instrument and distorting the reading, or causing a discharge. The ring end is clipped to the bottom of the meter; the crocodile clip/4mm stud should be connected to a suitable earth, such as a bare metal part of the machine.

1. Hold EX715 in the palm of hand, point it away from the charge and click the button once to turn ON. This sets the zero level for readings, so it must be pointing away from the charge when the button is clicked.
2. Hold the instrument 100mm from the object to be measured and observe the reading on the LCDdisplay. It shows the surface voltage of the static charge in kilovolts. The polarity of the charge is positive unless a negative sign is shown on the display.
3. Click the button again to HOLD the reading. When the reading is on HOLD it blinks/ flashes.
4. To take another measurement, re-zero the instrument by clicking the button when it is pointing into free air away from the charge. The HOLD function stops and the EX715 is ready to take another reading.
5. The EX715 turns itself OFF automatically after about 60 seconds.
6. Do not take a measurement within 300mm of a static eliminator, as the ionised air will distort the reading.
7. Replace the 9V PP3 battery when "Battery Low" indicator shows on display. Access is through the removable plate in the bottom of the instrument. For battery type see next page.

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## 4. Operating Instructions

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### Typical static levels:

1000V	active dust attraction begins
3000V	attraction of light materials e.g. 20 $\mu$ film
6000V	attraction of heavier film and papers & hairs on back of hand move, danger level in many hazardous areas
10,000V	film wraps around rollers in coating & gravure printing etc. and severe dust attraction

The EX715 measures the surface voltage in V or kV. A common question is “What is the relationship between surface voltage and field strength?” The relationship is:

$$\text{Surface voltage in V} = \text{field strength in V/meter} \times \text{distance from object in meters}$$

### Range:

The EX715 has two ranges which are selected automatically:

- Up to  $\pm 20\text{kV}$  the resolution is 10V
- From  $\pm 20\text{kV}$  to  $\pm 200\text{kV}$  the resolution is 100V.

### Battery Options

**Important:** The hazardous area certification of the EX715 is only valid if the following batteries are used. The choice of battery will also dictate the maximum ambient temperature in which the instrument can be used.

Duracell Industrial	MN1604
Duracell Coppertop	MN1604 gives the instrument a T4 rating with an ambient temperature $T_a \leq +59^\circ\text{C}$
Panasonic 6F22R	gives the instrument a T5 rating with ambient temperature $T_a \leq +40^\circ\text{C}$ ]



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## 5. Health & Safety

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This equipment is only suitable for Zone 1 and 2.

**WARNING** Do not open the EX715 to replace the battery or for any other reason when in a hazardous area.



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## 6. ATEX / IECEx Operating Conditions

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The EX715 has been certified for use in some hazardous areas. This section details the scope of this certification with explanatory notes.

Mark of Protection:  II 2 G Ex ia IIB T4/T5

- II ..... Industrial equipment.  
Electrical apparatus for places with an explosive gas atmosphere other than mines susceptible to firedamp.
- 2 ..... Equipment category: high protection. Suitable Zone I and II.
- G ..... Equipment used in potentially explosive atmospheres caused by presence of explosive gas, vapour and mist.
- Ex ..... Explosion protection.
- ia ..... Intrinsically safe.
- IIB ..... Representative gas group.
- T4 / T5 ..... Temperature class.  
When Duracell Procell or Duracell Coppertop MN1604 is used the equipment is rated T4 with an ambient temperature  $-20 \leq T_a \leq +59^{\circ}\text{C}$ .  
When Panasonic 6F22R is used the equipment is rated T5 with an ambient temperature  $-20 \leq T_a \leq +40^{\circ}\text{C}$ .

Approval numbers: Europe: Baseefa 07ATEX0159 International: IECEx BAS07.0042

The charge plate in the top of the meter should be kept clean. It is important to keep this area free from dust and fluff, and must not be touched in operation, as this will affect the reading.

Apart from replacing the battery, there are no user serviceable parts inside the EX715. If there is a malfunction it should be returned to the manufacturer. The guarantee is void if the instrument is taken apart.

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**8. Calibration**

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The EX715 is calibrated as standard using a 150mm x 150mm or other sized plate. If the instrument is used in hazardous areas then we recommend an annual recalibration.

If you need further information about static electricity problems, please contact the manufacturers or authorised distributors.

For more information about static and to view the full range  
of our products, please visit [www.fraser-antistatic.com](http://www.fraser-antistatic.com)



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