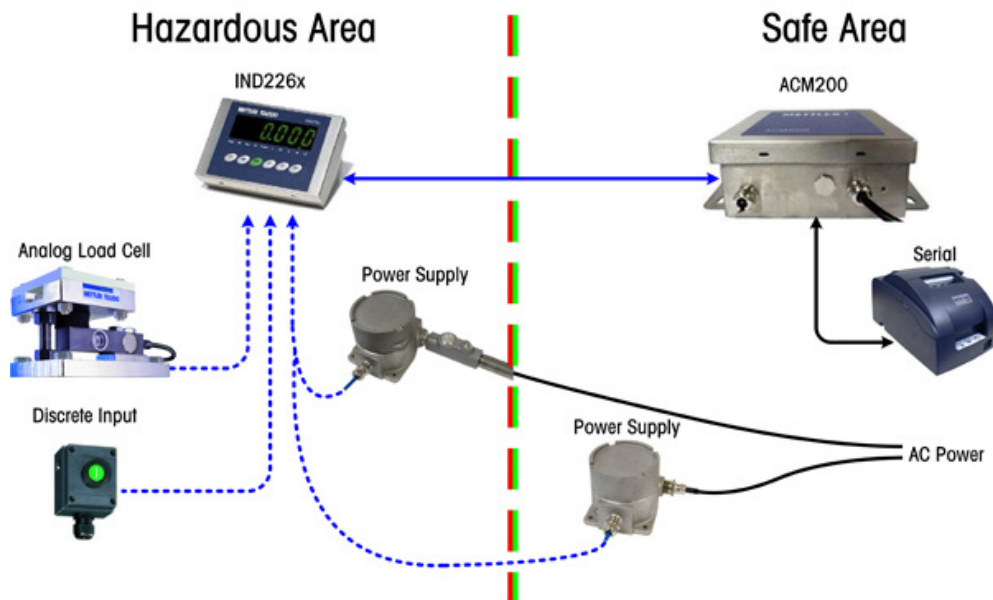


The art of intrinsic design.



Advice to the First-time Designer

If apparatus is intended to be sold and certified for use in hazardous areas then there are a number of factors to be taken into account to avoid long delays and escalating costs. The following is a possible procedure:

- 1) At an early stage consult with the certification body that will be used. In particular make sure that your existing quality control system is acceptable to that organization. The problems created in trying to get a finalized design certified can be insurmountable, and should only be attempted by the brave or desperate. The certification body has to avoid offering a design consultancy service [because of the potential conflict of interests] but they can help to avoid basic mistakes.
- 2) Keep things simple. Use as little power and as low a voltage as possible. Things are easier at less than 10V and 500mW.
- 3) From a system viewpoint, ensure that the residual effective capacitance and inductance at the apparatus terminals is less than 1nF and 10 μ H respectively. Where possible use only resistive limited sources of power.
- 4) Create a large flat space for the label.

Above all remember it is going to cost a lot and take a long time. Costs differ widely with the complexity of the apparatus. Initial certification costs are very rarely less than £5000 and the costs within the design organization are usually three times the certification costs. It has also to be remembered that there are ongoing costs of inspections and the inevitable variations to the certificate because of design modifications. Further certification may prove necessary as other markets open up. It is difficult to convince a rampant sales director that a certificate in another country cannot be obtained in two weeks at negligible cost.

An extract from:
The Current State of the IEC Intrinsically Safe Standards

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