



## Fact Sheet – HV Diagnostics

Have you ever considered what you would do if your site experienced an HV fault? How would you restore supplies whilst fault finding was under way for example? How would the fault be located and who would be able to do this for you?

### **HV Faults:**

We at EME Power Systems believe that we are the best equipped organisation, in terms of people, skills and equipment to be able to assist you in such an event. We own all of our own specialist test equipment & do not need to hire in test instruments from external sources. We know from our many experiences of fault location & repair that you need to have all instruments, calibrated, tested & available ready to draw on immediately when needed, after all these things never tend to happen when the shops are open. Included within our arsenal of equipment are Surge Generators, “Biccotest” oscilloscopes & acoustic listening devices. These are all extremely expensive pieces of kit & we are very aware that most of our competitors (in fact we are not aware of any) have not invested in procuring their own equivalent equipment (we know this because we regularly receive requests from them to use ours!).

We also of course have a full range of LV fault location devices for deploying on low voltage networks.

### **HV Protection Systems:**

#### Correct Operation:

It might sound like a strange thing to say, but it is extremely important that your system acts in the correct way when a fault does occur. Firstly it is important that the protective device operates in the way that it should and that it operates within the correct time; this is important because if it doesn't then additional damage (over and above the actual fault itself) will occur to your system – lengthening the time of repair. Correct operation can be proved prior to such a situation developing & the way that this is carried out is by the method of secondary injection testing - a simulated fault current is injected into the device and then its operation timed & verified as being within an acceptable tolerance.

#### Correct Grading:



Constructionline



In essence this is the ability of the HV electrical system under fault conditions to be able to operate the protective device that is nearest to the fault within a time that prevents further damage occurring to electrical plant or equipment; in many respects it is similar in philosophy to the “discrimination” that should occur between LV devices. The stakes though in achieving correct grading across HV devices (as it also is between HV devices & main LV switch board incomers) are high; if a system is poorly designed and/or devices are incorrectly set then a comparatively minor event (perhaps even one occurring on your low voltage system) could result in a total loss of supply to the entire site (which could result in the need to call out the local DNO in order to re set their circuit breaker) – highly undesirable.

The solution of course is to verify that the system’s protective relays & devices have been correctly selected and set; EME Power Systems have in house technical expertise capable of carrying out this work for you; we achieve this through first of all carrying out a site survey of the system & it’s associated protective devices which we then utilise in a technical desktop study of the network. We utilise the latest industry design software to examine how the system would react under fault scenarios and with the grading study complete, we are able to advise of any suggested changes to devices or their settings, a preventative measure to protect site production against unnecessary outages occurring in the future.

All of this, coupled with our out of hours call out facility & supply agreements with generator companies means that we are extremely effective at reacting quickly when an emergency occurs & we have a great track record when it comes to responding, identifying & repairing faults (please take a look at our website for real life examples & customer testimonials).