Working safely with electronics racks

Inside an electronics rack: danger could be lurking if the rack is not powered off.

Think of CERN and you’ll probably think of particle accelerators and detectors. These are the
tools of the trade in particle physics, but behind them are the racks of electronics that include power supplies, control systems and data acquisition networks.

In routine operation, these are no more harmful than the home entertainment system in your living room. But unscrew the cover and it’s a different matter. Even after following appropriate training, and with formal authorisation from your group leader or equivalent to carry out electrical work or any work in the vicinity of electrical hazards, and even with extensive experience of carrying out such operations, it’s important to incorporate safe working practices into your routine.

At CERN, before the racks of electronics reach their operational configurations for the accelerators and detectors, they play a vital role in test set-ups – looking to the accelerators and detectors of the future. In these set-ups, the covers are often off as a matter of necessity – adjustments need to be made, electronic pathways need to be rerouted – and that’s a source of risk.

This year, accidents have been recorded involving electric shocks sustained due to contact with low voltage power supplying the racks. To avoid such risks, there are simple measures that you should take:

1. Make sure you have followed the relevant safety training courses and that you are authorised to carry out the work.
2. Switch off the power to your rack and check it is not energised before any intervention.
3. If you are unsure about how to carry out the electrical operation in question or you don’t know the equipment or the entire rack environment well, don’t touch it – ask your supervisor for advice.
4. Wear the appropriate personal protective equipment for the job in hand.
5. Work carefully and take the time needed to complete the work safely.

Over the years, the built-in safety of rack electronics has improved dramatically, but improvements can still be made. And however well prepared you are, accidents can always happen. That’s why it’s important to report accidents and near misses: it not only helps you, it helps to ensure that others are protected in the future, and that built-in safety can continue to
improve.

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