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## PRESS RELEASE

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A new publication from the Leonardo Power Quality Initiative provides practical guidance on how to avoid costly downtime caused by PQ induced errors in continuous manufacturing process equipment. Written by Mark Stephens of EPRI, this publication examines typical voltage dip problems in continuous processes and suggests economic, effective and proven measures to 'harden' continuous manufacturing processes.

Loads such as programmable logic controllers, relays, power suppliers, contactors and motor drives are common in automated continuous manufacturing processes. A power quality induced error in the process can quickly lead to a cascading shutdown of the entire process. The resulting downtime can be costly and can result in lost production. The most significant PQ problem for continuous manufacturing plant operators and maintenance managers are voltage dips. A minor voltage dip to 70% of nominal (i.e. a 30% reduction), lasting less than 100 milliseconds, can cause automated systems to fail.

This new 16 page publication covers voltage dip basics, such as frequency, characteristics, standards and effects on equipment, and presents techniques for improving the overall robustness of continuous manufacturing processes by the use of power conditioning equipment.

Voltage dip hardening can be achieved with a few straightforward measures. Always use components that meet the relevant standards, avoid mismatched equipment voltages and use three-phase switching power supplies wherever possible. Consider circuit breaker characteristics and do not use phase monitoring relays in interlock circuits. Avoid the use of ac-powered general-purpose relays and select machine control systems that use non-volatile memory. Use robust variable-speed drives, consolidate control power sources and always be careful not to overload dc power supplies. As a last resort, a targeted voltage conditioning approach may be used.

'PQ in Continuous Manufacturing' is just one of over 30 application notes forming the 'Power Quality and Utilisation Guide'. Formerly known as the 'Power Quality Application Guide', this eight section guide covers technical and financial considerations and is aimed at electrical engineers, facilities managers and contractors. All material has been reviewed by the Chief Editor, David



Chapman, and is approved for CPD by the Institution of Engineering and Technology.

The Power Quality and Utilisation Guide has been produced as part of the Leonardo Power Quality Initiative pan-European education and training programme. Individual Application Notes and a fully searchable pdf collection can be downloaded from [www.cda.org.uk/pgp/pgag.htm](http://www.cda.org.uk/pgp/pgag.htm). Alternatively, a fully searchable set of Application Notes on CD can be obtained, free of charge, by contacting [helpline@copperdev.co.uk](mailto:helpline@copperdev.co.uk).

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