



White Paper

## Digital Weighing in Bulk Handling

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A general introduction to weighing in bulk handling is given with particular reference to the various methods of weighing bulk materials during and after loading. Several case studies are outlined.

In a relatively quiet way, weighing technology has advanced rapidly and dramatically in recent years. Two decades ago the weighing industry was on the verge of proving electronic weighing a viable concept. Today, it exploits the latest solid-state techniques in all manner of weighing equipment, and it does so with facility and sophistication.

This can largely be attributed to strong and traditional innovatory instincts. Accustomed to lively product-development programmes, weighing research and engineering teams have been quick to see that electronics can lead to major improvements in product performance, quality and reliability.

The process has been going on for sometime, longer than many people realize. The first load-cell weighbridges were installed in the early 1960s and are as commonplace nowadays as their mechanical counterparts were twenty years ago. Before the seventies, static digital instrumentation was being incorporated in load-cell systems for process weighing and the first electronic scheme for weighing rail wagons in motion was in service.

The microprocessor is the most recent influence, and in the last four years the pace has quickened. The chip has swept away certain technological restrictions on product specification and performance. It has freed weighing designers and engineers from the restraints imposed by past technologies.

Microprocessors, microcomputers, and the allied control and programming techniques are now being used in all types of equipment, from counting machines and industrial scales to weighbridges, batching systems and weighing-in-motion installations. Thus load cells, solid-state physics, digital techniques, computer technology, and control engineering have come into alliance with the advanced mechanical engineering on which successful weighing will always depend.

This paper considers how the current technology is being applied to two different methods of weighing bulk materials during and after loading.