Product Application **AP05311001E**

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Supersedes May 2007

Load monitoring with CurrentWatch™

Introduction

Equipment protection and safety concerns are often addressed by interlocking two or more drive motors. The objective is to start the second motor only when the first motor is running and driving its load.

Many of these applications use sensing technologies that rely on motion or speed detection. These sensing methods may be compromised by misalignment, mechanical shock, or mis-wiring during installation. Auxiliary contacts are not a reliable way to interconnect critical loads, and they are easily bypassed and susceptible to sticking or binding mechanisms. Overloading will most often cause the auxiliary contact to fail closed.

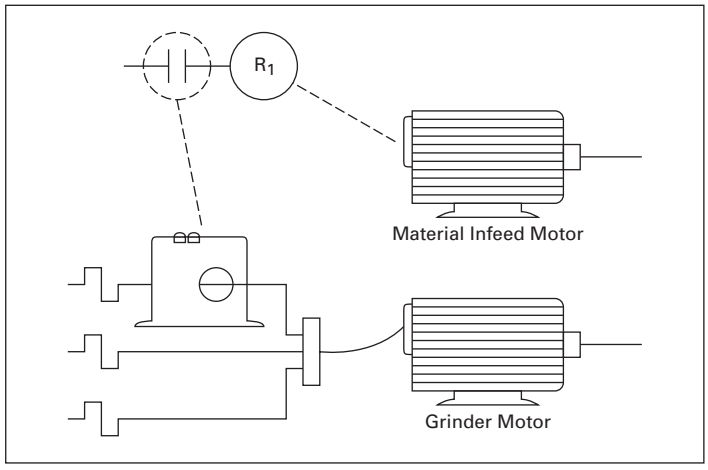

Figure 1. Application Example of a Two-Drive System

Advantages of current sensors

By installing a CurrentWatch™ switch such as the ECS Series on each motor, the operator will know when the load is actually running. And because the switch mounts right in the control panel or the motor starter enclosure, installation does not require long field wiring runs or complex programming or mounting hardware.

Application examples

Some examples of current sensor applications include:

- At a grain mill, an exhaust fan must be turned on before the silo is filled with flour. Flour dust—if allowed to build up—can be very dangerous, and measures need to be taken to reduce risk. The ECS Series current switch, used on the fan power leads, can ensure that the exhaust fan is running and moving air before the in-feed conveyor is allowed to operate
- A high-volume cabinetry shop uses the ECS7 Series current switch to ensure that the sawdust exhaust system is operating when all saws, planer, or other woodworking machines are turned on
- An automobile manufacturer uses ECSTD Series current sensors to monitor drive motors that move pallets of parts down a track and into a tempering oven. If a stray part jams the track, the current switch monitors the current in the drive motors. When the current increases, the sensor signals an alarm and the drive motors are shut down before equipment or parts are damaged

The applications for current sensors and switches are nearly limitless, as they can be used to monitor any piece of electrified equipment.

For application assistance or for help with technical issues regarding current sensors or any other sensor in Eaton's portfolio, contact our Sensor Application Engineers at (800) 426-9184, option 2.

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