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SmartConnex Feeder Controls

SmartConnex Control Environment for Feeders

Coperion K-Tron's machine controllers and operator interfaces deliver full functional flexibility and the connectivity you need. Coperion K-Tron's SmartConnex control environment provides comprehensive control capability with maximum flexibility and connectivity for systems up to 24 weigh belt feeders, loss-in-weight feeders, volumetric feeders, batchers, flow meters, Bulk Solids Pump (BSP) feeders or PID controlled devices as well as pneumatic refill systems.

SIMPLE CONTROL ARCHITECTURE
Each SmartConnex control system comprises a combination of the following control components: a Control Board & Motor Drive Module (KCM) for each feeder and an optional Operator Interface.

SmartConnex offers a choice of two operator interfaces: KSU-II Single Unit Interface or K-Vision Line Controller for multiple line control. These display and data entry units can be employed individually or in combination as required by the application.

SMARTCONNEX CONTROLS
KCM-III Control Module

The newly redesigned KCM-III has a variety of new features, including a larger 5-inch LCD screen with an improved user interface, context-sensitive help, stainless steel enclosure, and built-in Ethernet capability with optional Wi-Fi. With Ethernet capability (wired or wireless) the KCM-III can be accessed via a user-friendly feeder web page that includes a full feature user interface. In addition, the KCM-III is ready for Industry 4.0 functions such as predictive maintenance, electronic service options, overall equipment effectiveness, outlier detection, machine optimization and much more.

The KCM-III combines feeder control and motor drive modules into a compact housing, offering more flexibility and excellent performance. Each feeder has its own KCM, generally mounted directly on the feeder, which is available in various configurations depending on the application.

KSU-II Single Unit User Interface

The KSU-II is an economical user interface for single feeders with KCM. It can also be used as a portable display for maintenance or configuration in larger systems where the feeder's primary display point is a higher level unit. The KSU-II can be dedicated to a single feeder or it can network to multiple KCMs. The KSU-II will only view one feeder at a time, but the user can switch between feeders.

K-Vision Line Controller

The K-Vision™ controller simultaneously controls max. 24 devices in up to two lines. Operator interface is via 12.1 inch color LCD with a touchscreen. K-Vision provides recipe entry and a detailed overview of the process line with extensive real-time monitoring of feeder status and performance. This user friendly HMI offers a wide range of easily configured charting and trending capabilities.

FEATURES

- **SCREW SPEED MODULATION**
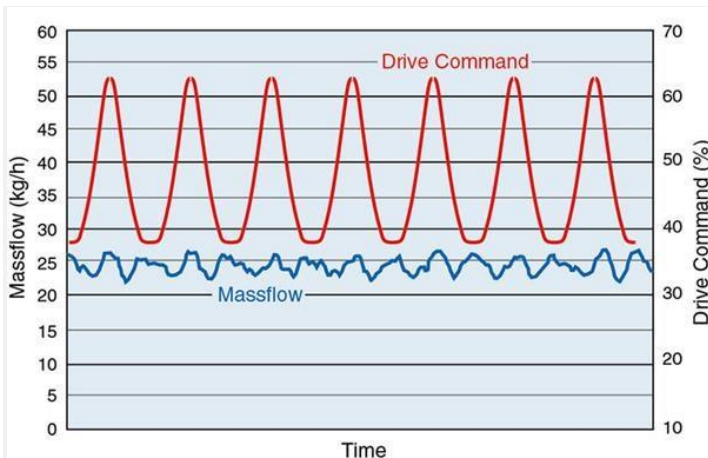
The Screw Speed Modulation algorithm adapts the drive command to minimize massflow pulsation

Single screw loss-in-weight feeders operating at low rates often produce an unsteady discharge within one revolution of the screw, resulting in mass flow pulsation. Coperion K-Tron's exclusive Screw Speed Modulation algorithm records the pulsation and adjusts screw speed to compensate for the effect, minimizing mass flow variability and ensuring smoother discharge.

- Short-term accuracy improved by a factor of 2
- 2-Sigma accuracy at a 10 second sampling time improved tremendously
- Ideal for low feed rates (speed < 1 screw rotation per second)

- **OPTIMIZED FEEDER REFILL**
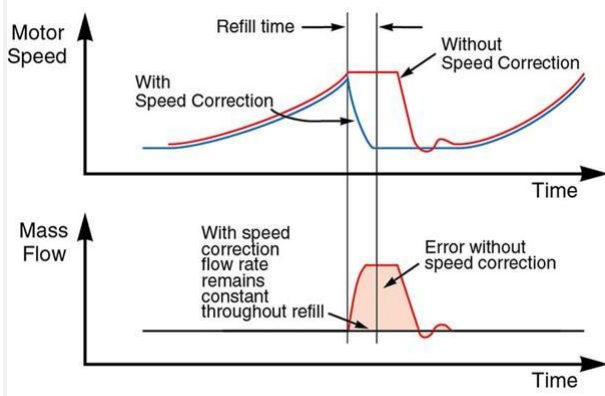
Smart Refill Technology improves accuracy during feeder refill

During loss-in-weight hopper refill, sensed weight is not useful to control feed rate. While others simply freeze screw speed until refill is complete, Coperion K-Tron's exclusive Smart Refill Technology memorizes recent gravimetric performance at various hopper weights and varies screw speed to compensate for changes in material density during refill. This maintains accurate performance and enables a smoother transition to full gravimetric control.

- **VIBRATION IMMUNE WEIGHING**
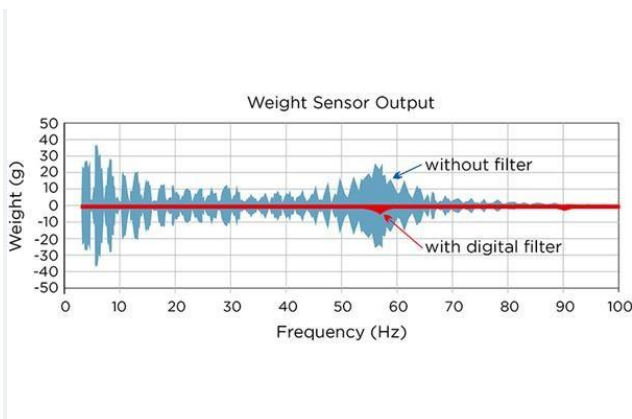
Dynamic digital filtering minimizes weigh errors due to environmental influences

Achieving high gravimetric feeding performance on the process line requires discriminating between weight data and the contaminating effects of inertial forces induced from ambient vibration and shock. Coperion K-Tron's exclusive dynamic digital filtering algorithm continuously identifies and extracts spurious inertial components from the weight measurement, even in severe process environments.