

SmartConnex Controls

comprehensive control with maximum flexibility

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.



KSU-II Single Unit Interface

SmartConnex Operator Interfaces

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

➤ KSU-II Single Unit Interface

The KSU-II is an economical user interface for single feeders with KCM-III. 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 KCM-III units. The KSU-II will only view one feeder at a time, but the user can switch between feeders.

➤ K-Vision-III Line Controller

The K-Vision-III™ HMI simultaneously controls up to 24 individual continuous KCM feeder control modules on a single process line. The operator interface features a 15 inch color LCD with a touchscreen. K-Vision-III 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.



K-Vision-III Line Controller

Control and Motor Drive

The Coperion K-Tron Control Module (KCM-III) combines feeder control and motor drive modules into a compact new 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.

Control and motor drive modules are combined into one component and may be mounted at the feeder or remotely. Each KCM comes with all the software needed for continuous or batch applications. Connection between feeders and operator interface is via a network. The KCM can also connect directly to the plant's automation network (see page 2).

The loss-in-weight feeder control software incorporates Screw Speed Modulation, an exclusive algorithm that can improve the short-term feeder accuracy on single screw feeders by up to a factor of two at low feed rates (screw speeds below 60 RPM) by predicting the periodic pulsation and modulating the screw speed to reduce the error. Spiral and full flight single screw feeders exhibit this pulsation more commonly than other screw configurations.

All KCM feeder controllers include integrated refill control for Coperion K-Tron self-contained vacuum loaders or single central receivers. Refill control can be handled through the feeder operator interface.



KCM-III with operator interface or just status display

SmartConnex Connectivity

flexible interfaces for a smarter future

KCM-III feeder control modules are designed to deliver seamless integration and outstanding performance in modern industrial environments. With a wide range of interface options for serial communication, they ensure smooth and reliable connectivity with plant control systems. Their modular connectivity options allow manufacturers to tailor configurations precisely to their needs, enabling scalable solutions that can evolve alongside production requirements.

For plants utilizing an Ethernet-based industrial communication protocol like Modbus/TCP, Ethernet/IP, or Profinet, the K-Vision-III line controller can act as a data concentrator – allowing DCS and PLC plant control systems to interact with all feeders on the line by communicating to a single point. The K-Vision-III also helps ensure operational stability with features like parameter backup and restore for each individual controller, allowing flexible reconfiguration and replacement at a moment's notice.

KCM-III Connectivity

KCM-III with Serial Communication Protocol



Allen Bradley DF1, Modbus RTU or KMB: serial connection to Host or KSC, RS 485 (2 or 4 wire selectable)
Profibus DP or DeviceNet: serial connection RS 485 (2 wire)

KCM-III with Ethernet MB/TCP or IP Communication Protocol



Ethernet
Switch

Modbus TCP, Profinet and Ethernet/IP: 10/100 Ethernet connection to customer, Switch to be supplied by customer or consult factory.

K-Vision Connectivity



K-Vision-III

HOST communications

Ethernet connection
Protocols: Modbus TCP, Ethernet/IP or Profinet

RS485 4-wire serial connection with KMB protocol



Coperion K-Tron Feeders with KCM-III, KCM

Auxiliary Products

Coperion K-Tron also offers a variety of auxiliary PC tools for enhanced SmartConnex functionality.

DataRecorder – Tool used to save process data from one or more feeders to a CSV file when installed on a Windows PC connected to the Feeder control network via Ethernet or Serial connection (free demo version records one hour)

K-Sampler – Tool used to calibrate/qualify feeder scale systems and/or validate feeding accuracy using independent sample scales

SmartConfig – Free tool for configuring custom data exchange mapping for supported automation networks, such as Profibus, Profinet, DeviceNet, Ethernet/IP, Modbus TCP, etc.

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